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THE NERVOUS SYSTEM AS INFLUENCED BY HIGH ALTITUDES *

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The frequency with which individuals exhibit nervous symptoms, or complain of 'nervousness' while living at increased elevations is responsible for the popular or common belief that one may expect to become "nervous" because one lives at the higher altitudes This view has obtained so long that it is expressed with as little consideration as its value, empirically, really merits, but in the belief that a general *a priori* review of the underlying factors involved might be advantageously brought to the attention of the section, it was chosen as being of sufficient interest to form a part of the annual communication of the chairman and at the same time relieve it of an aspect of formality or conventionalism

Some one has commented on the humor of the tendency in Colorado to charge to the altitude all of the evil or disagreeable changes experienced, while the climate is invariably credited with the benefits derived Such expressions as "high altitudes are too hard on the nervous system" and "one cannot live any length of time at such an elevation without a nervous breakdown," and again, "women cannot live in Leadville (10,200 feet) because their nervous system does not seem to stand the altitude—they become nervous wrecks" are merely the result of experiences and accepted by the public, and in no little part by the profession, without inquiry as to the reason for the manifestations commonly grouped under the term "nervousness" being brought about

The first clue to a most important factor in determining these manifestations is to be found in the improvement frequently observed as a result of a more or less prolonged stay at a lower elevation or at the sea level—indeed, so often is this the case that the advice has become a routine It would appear to be likewise significant that the plethoric type of individual rarely finds it necessary to leave the higher altitudes, while it is most often those evidencing a type of relative or absolute anemia who seem invariably to find relief at the lower elevations A sufficient number of cases have been observed in which environmental influences could be eliminated as playing a negligible rôle

It is not a definite syndrome with which we have to deal, but rather a state or condition of the nervous system probably best characterized as an irritability or hyperexcitability which may manifest itself in the motor, sensory or psychic spheres, or a combination of them, in an otherwise normal individual Associated with this increased excitability is an increased rapidity of fatigue which finds expression in muscular weakness and diminished physical endurance, as well as failure in adaptability and power of concentration mentally They complain of a mental unrest approaching anxiety, and find difficulty in carrying on the usual mental requirements of their occupations, owing to the failure to concentrate or sustain the attention It is quite indicative when an individual experiences his best functional ability on awakening in the morning, which rapidly gives way to an unusual degree of fatigue, increasing as the day progresses This condition may be the forerunner of a simple neurasthenia or in the presence of a congenital predispositio[illegible] development of the more profound neuroses is [illegible]tated The psychic determinants of neurotic [illegible] find such a nervous system an easier prey to [illegible] influence

If we turn our attention now to the purely physical facts in relation to altitude we find there is a progressive diminution in atmospheric pressure in accordance with the elevation For example, at the sea level the barometer will register in the neighborhood of 760 mm (30 inches) with a temperature of 50 degrees, at Denver (5,280 feet) under like conditions 630 mm (24 74 inches) and at the summit of Pike's Peak (14,109 feet) from 452 to 462 mm (17 8 to 18 2 inches) With the diminution of pressure, the atmospheric expansion is inversely proportionate and consequently the weight of oxygen in a given volume of air is correspondingly diminished

Applying these facts physiologically, it is apparent that in order that a requisite amount of oxygen be transported, an increase in the volume of air inspired must take place, an increase in the lung area utilized, a greater number of corpuscles be exposed to aeration, and an increase in the amount of hemoglobin The latter would seem to be required in even greater amount since, as Barcroft[1] has shown, the saturation power of hemoglobin varies with the oxygen pressure

In 1911, the Anglo-American Pike's Peak Expedition, undertaken by members of Oxford and Yale universities, made extensive physiologic observations, when it was found that "the percentage of hemoglobin in the blood increased for several weeks on the summit of Pike's Peak, and varied in various *acclimatized* persons from 115 to 154 per cent on the scale of the Gowers-Haldane hemoglobinometer, corresponding to a percentage of oxygen capacity of from 21 to 28 5 c c of oxygen per 100 c c of blood The number of red corpuscles increased parallel with the hemoglobin and there was no change in relation between the coloring power and oxygen capacity of the hemoglobin or in the dissociation curve of hemoglobin in the arterial blood The increase in hemoglobin was apparently due to" concentration of the blood "for the first few days," but "afterwards entirely to a large increase in the total amount of hemoglobin" Barcroft,[3] in commenting on his own observations and those just mentioned, concludes that "in each case there was a gradual rise in the total oxygen capacity, which reached its imal value only after some time, about three weeks the ascent This perhaps is the essential point, for it proves quite clearly that the body reacts to the altitude either by producing increased quantities of hemoglobin or by retaining what would otherwise be broken" In this regard, however, the observations of Burker[4] differ somewhat in that the individual variations were found to be greater He found that smaller and lighter individuals reacted most strongly and more promptly, hemoglobin and erythrocyte count increased uniformly, so that the average hemoglobin content of the corpuscle underwent no essential change In the larger and heavier individuals the hemoglobin content increased more than the numerical count so that the corpuscles were richer in hemoglobin in the higher elevations The same author states that blood reaction as influenced by high altitudes is construed as an adaptation of the oxygening surface of the blood to the altered external tions of the lower elevations, especially to the of oxygen through the diminished atmospheric re"

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* Chairman's address read before the Section on Nervous and Mental Diseases at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Barcroft Respiratory Function of the Blood 1914 p 15

[2] Phil Tr Roy Soc London, Series B ccii 185

Symptoms observed on ascending Pike's Peak, blueness of the lips and face, loss of appetite, and vomiting, intestinal disturbances, headache, ting in some persons, periodic breathing and great perpnea on exertion, are transitory manifestations nd persist two or three days, when distinct signs of acclimatization become apparent In this process of acclimatization, three factors became evident (*a*) increased secretory activity of the lining cells of the lung alveoli, (*b*) lowering (in consequence of the diminished alkalinity of the blood) of the threshold of alveolar carbon dioxid pressure, and (*c*) increased percentage of hemoglobin in the blood The stimulus to these compensatory changes is deficient aeration of the blood passing through the lungs, and the compensation attained is, though very considerable, not complete

Acclimatization in the normal individual presupposes, therefore, the ability to supply especially the required increase in the red blood cells and in the amount of hemoglobin The degree of this ability then determines the completeness of acclimatization, and the oxygen want must obviously be in proportion to deficiency in the power of adaptability

With this brief reference to the experimental work of Zuntz, Burker, Barcroft, Haldane, Douglas, Henderson, Schneider and others, it is obvious that an increased activity of the blood-forming organs is the normal process of adaptation stimulated through oxygen want in the higher altitudes Moreover, it becomes apparent that the clinical standard of corpuscular and hemoglobin determinations which might be regarded as within the normal at the sea level, when obtained at an elevation of 5,000 feet or more, may be regarded as a relative anemia which deserves consideration as a possible foundation for pathologic symptoms

Now, as is well stated by Sewall[5]

> The very essence of constitutional disease is the failure of physiological response on the part of living tissues to the external stimuli which are their normal excitants Far from being strange, it is to be expected that in a certain proportion —a large proportion—of people the physiological response of the blood-forming tissues to the stimulus of altitude should be slow or imperfect The clinical result is relative anemia

Assuming, then, that anemia results fundamentally in the limiting of oxygen supply to the tissues, it seems proper to direct attention to the nervous tissue metabolism under like circumstances The necessity for oxygen, and the fact that it is used up during the action of the brain,[6] can be very strikingly demonstrated by the experiment of Hill with methylene blue, and it can also be shown that this use is confined to the period of activity

Thurnberg[7] showed that the consumption of oxygen and production of carbonic acid in nerve cells can be demonstrated directly by chemical analysis

That individual ganglion cells present different resistances to anemia has been further confirmed by Landergren's[8] work on the phenomena of acute asphyxia, especially noteworthy is the finding of a brief rise of activity in the vasobulbar center

Verworn's[9] work on the metabolism of nerve cells by means of strychninized frogs demonstrated that when the excitability was lost, the constituent in the blood responsible for restoration was not organic nutritive materials, but solely due to the oxygen From his result he distinguishes two fundamentally different factors in the paralysis of the centers, namely, the fatigue due to the accumulation of the toxic products of metabolism and exhaustion due to the consumption of the supply of oxygen

It can be proved in many ways that the passage of a nerve impulse through the nerve centers requires the expenditure of energy by these centers It is significant that in all nervous systems, especially in the higher animals, that arrangements are made for their free supply of oxygen[10] Very short deprivation of oxygen causes a complete block throughout the system, in many cases preceded by a short period of increased excitability or ease of transmission

As early as 1879 Schmoulewitsch,[11] actuated by the experiment of Stevson, dating from the seventeenth century, found that deprivation of blood did not, as was previously observed, cause an immediate loss of irritability On the contrary, this is for a while even increased and commences to disappear only after a certain degree of augmentation The same phenomenon was observed after section of a nerve The irritability of the corresponding muscle is increased for the first few moments In his opinion, given at that time, this was to be attributed also to anemia, as the immediate result of nerve section In this regard his conclusions are interesting

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[3] Barcroft Respiratory Function of the Blood, Barcroft, 1914, p 130

[4] Bürker Ztschr f Biol, 1913, lxi, 379

[5] Sewall Colorado Med 1915 xii 41

[6] Halliburton Biochemistry of Muscle and Nerve, 1904, p 79

[7] Thurnberg, quoted by Luciani Human Physiology, 1915, iii, 231

[8] Landergren, referred to bby Luciani Human Physiology, 1915, iii, 267

[9] Verworn, referred to by Luciani Human Physiology, 1915, iii, 271

[10] Starling Human Physiology, 1915, p 314

[11] Schmoulewitsch Bull gen d therap, abstr, Periscope, Jour Nerv and Ment Dis, 1879, vi, 154

> That the anemia is the cause of increased irritability of the muscles, I have proven by the following experiments
>
> 1 After compression of the aorta or ligating the artery of a muscle, we cannot produce any augmentation of the irritability after section of a nerve This demonstrates that this augmentation depends exclusively upon the circulation for, as I say, the circulation once interrupted, the section of the nerve is without effect
>
> 2 In curarizing an animal to the stage of complete paralysis we always find an increase of muscular irritability following the section of the nerve Here, evidently, only the vasomotor nerves can act, since, as has been demonstrated, they are not easily paralyzed by curare
>
> Anemia, therefore, like certain affections of the nervous system that disorder the functions of the vasomotors, should increase the muscular irritability, a fact observed clinically, but not as yet sufficiently demonstrated theoretically

It seems evident, therefore, that in the absence of oxygen supply the excitability of the protoplasm of nerve and other cells is lost—a fact which at first sight appears to be in conflict with clinical experience It must be kept in mind, however, that we are concerned with a lessened oxygen supply, rather than with a complete withdrawal

Is the increased irritability and consequent fatigue to be attributed to the insufficient oxygen supply primarily, or to the influence of the products of metabolism which have not been sufficiently oxidized to secure their elimination?

In order that expressions from more competent and authoritative sources might be presented, personal communications with the foremost physiologists were solicited and in general reveal an inclination to the former view, namely, that the irritability is to be charged to the diminution of oxygen supply through failure to effect the ordinary compensation Professor Henderson considers that a "moderate deprivation of oxygen may readily cause an increase in irritability and a greater readiness to fatigue, while an extreme deprivation reduces irritability" He also calls attention to the fact that in the term "irritability" it is not an increase of functional power that is implied, but rather the reverse—an ease of excitability or irritability in what might be considered the popular rather than the scientific sense

Dr Haldane expresses himself as in accord with the writer, in that the hyperexcitability is to be attributed to oxygen want, and does not accept the view that oxygen want is sedative, and to emphasize his view, points out "that the effect of cutting off a man's victuals is not sedative—anyhow in the early stages" He further summarizes his views as "1 Want of oxygen, within limits, is or may be excitant and not sedative 2 The amount of oxygen in the blood is not an index of sufficiency at low pressures"

The unoxidized toxic or intermediary products of metabolism are preferably to be regarded as depressants, according to Dr Howell, and in accordance with their concentration, although he cites the observation of Lee, that the first effect of the fatigue products of muscular contraction is an increase of irritability followed by depression when the concentration is presumed to have increased

Without entering further into details with reference to the mechanism of the finer adjustments of the body to the oxygen supply, such as the carbonic acid or rather the hydrogen-ionic influence on the respiratory center, the relation of muscular exertion to its production, mode of formation, relations of alveolar and blood content and influences modifying these relations, etc, it seems established, that there is an irritability of the nervous system to be attributed to diminished oxygen supply by reason of the failure on the part of certain individuals to bring about an adaptation to the conditions incident to the diminished atmospheric pressure

It must be admitted that there is good reason to suspect the possibility of some remote pathologic process as a fundamental factor inhibiting the power of adaptability in certain persons

The estimation of hemoglobin by means of most of the ordinary methods in use depends on individual judgment of shades of color, and variations are often quite considerable There is a strong tendency to read the percentage too high, especially when the examination is made in a subdued light This was found to be particularly true when daylight was the source of illumination In eighty-nine comparative observations made with day, and artificially lighted instruments, taking the judgments of three individuals, the estimations were invariably higher by the latter method, and varied from 6 to 15 per cent

The corpuscular count was found to correspond so uniformly to the hemoglobin percentage that in the majority of cases it might be omitted

As a result of several years' careful observations at an altitude of about 5,000 feet, it seems evident that the threshold of nervous stability varied between 82 and 88 per cent, corresponding to a corpuscular enumeration of from 4,100,000 to 4,400,000, and influenced in individual cases by demands made on nervous structures as determining causes

It was recognized quite early that the clinical ineffectiveness of the ordinary chalybeate therapeutic measures was not to be regarded as negativing the lowered blood values as a cause of the nervous instability, since not infrequently subsequent estimations made in the absence of clinical improvement were found to show but little increase and were in some instances even lowered It was necessary to change the form of iron administration, especially in the stationary cases, until one was found to be effective in elevating the hemoglobin content With this elevation the clinical improvement was uniformly constant, regardless of the means of accomplishment In a few instances the removal to a lower altitude with the continuation of the iron administration proved effective when no impression was observed while at the higher elevation

A marked increase in the elimination of the phosphates noted in a majority of the cases suggested the administration of the alkaline and earthy normal phosphates, and in some of the stationary cases seemed to augment the iron assimilation

The question "Do so-called neurasthenic cases or those of 'nervousness' occur more frequently at high altitudes?" must be answered in the negative, but for several reasons First, the general standard of living is better than in the more congested centers of population, second, the confined artificially lighted indoor workers are less common, third, there is a greater average of bright, cloudless days, lastly, the greater intensity or actinism of the light

Finally, it is the class of patients who are able to live with more comfort at the lower altitudes and who manifest irritable neurotic disorders repeatedly on going to the higher elevations that prompted this investigation and as a result of which it may be concluded that

1 The demand for oxygen-carrying elements of the blood increases directly with the altitude

2 In normal individuals this requirement is met through an increase in the red blood corpuscles and hemoglobin in from three to five weeks—the normal acclimatization

3 This power of adaptation is diminished or wanting in certain individuals

4 Deficient acclimatization results in oxygen want or relative anemia

5 As a result of diminished or limited oxygen supply, the increased excitability or irritability of the nerve structures may be explained

6 If by therapeutic or other means, the blood forming mechanism can be stimulated into activity, individuals should find no more difficulty in living tranquil lives in the high altitudes than at the sea levels

325 Mack Building

COMPLICATIONS AND SEQUELAE OF THE OPERATION FOR INGUINAL HERNIA

AN ANALYSIS OF ONE THOUSAND AND FIVE HUNDRED CASES AT THE MASSACHUSETTS GENERAL HOSPITAL*

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The operation for the repair of inguinal hernia is ly regarded as one of the most satisfactory and e of surgical procedures The operative technic become practically standardized for the routine the general principles of closure of the canal accepted with difference of opinion only as to the , of transplantation, or nontransplantation, of the rmatic cord Special and unusual cases, particu- rly large, direct hernias, may require special measures, such as transplantation of the rectus muscle, or sheath, or implantation of fascia lata

Large series of cases have been reported by individual operators of great experience, showing a very high percentage of cures and a practically negligible death rate Coley[1] reports 3,100 cases of inguinal hernia in which operation was performed at the Hospital for Ruptured and Crippled from 1891 to 1912, with twenty-eight recurrences, less than 1 per cent of the total number Out of 3,383 cases of hernia of all kinds in which operation was performed there were six deaths, a mortality of 0 17 per cent

The statistics of Wolfler's clinic at Prague comprise 1,460 nonincarcerated inguinal hernias in which operation was performed between 1895 and 1910, with eight deaths, a mortality of 0 63 per cent Relapses after operation were estimated at from 5 to 8 per cent

The dissemination of such favorable modern statistics as these, together with improvements in general anesthesia, the introduction of spinal anesthesia, and wide adoption of local anesthesia have greatly extended the field of this operation An increasing number of the ruptured are insistently demanding surgical relief from the uncertainties and annoyances of truss treatment

Patients who a few years ago would have been rejected as unfit surgical risks on account of age, infirmity or intercurrent disease are now readily accepted for this operation, until it is beginning to be a question if the pendulum is not already swinging too far At any rate, it seems an opportune time to check up results, to audit, as Codman would express it, our hernia accounts

The 1,500 cases which form the basis of this report were consecutive cases of inguinal hernia in which operation was performed at the Massachusetts General Hospital from October, 1908, to December, 1914 Definitely strangulated hernias are not included, but cases of incarceration without acute symptoms are counted

In considering these statistics, it must be borne in mind that the operations were performed by a large number of surgeons of varying degrees of experience, no less than seventy-five individual operators There were 1,093 operations done by members of the visiting staff, the largest number to the credit of any one operator being 117, and the smallest, 1, 663 operations were done by fifty-three different members of the junior house staff

The patients also showed extreme variation as to age, physical condition and social condition, as would be expected in a large general metropolitan hospital Comparison of such statistics with those of single operators dealing with somewhat selected material cannot but be disadvantageous

The youngest patient was 10 months of age, the oldest 77 years There were ninety patients between 1 and 10 years of age Eight patients were over 70 The largest number of cases fell in the decade between 20 and 30, namely, 397

There were 1,388 males and 112 females In 1,244 cases the hernia affected one side only, in 256 it was double In eighty-eight cases the hernia was direct, in the others indirect No cases of strangulated hernia were included, In ten cases the hernia was of enormous size In sixty-nine cases the hernia was complicated by undescended testicle There were nine cases in which the bladder was contained in the sac In one of these cases there was a large stone in the bladder contained in the hernial sac The appendix was found in the sac eight times, and removed in the course of the operations forty-six times There were seven cases of sliding hernia There was hydrocele present in forty cases, marked varicocele in twenty-six cases In fifty cases there had been a previous operation for hernia, with recurrence

In the 1,500 cases there was a total of 1,756 operations, counting double hernia as two operations In the male cases the Bassini technic was employed 834 times, Ferguson 764, and Halstead fifteen, with twenty-four cases of varying and miscellaneous technic

In sixteen cases in which the hernia was complicated by ectopic testicle, orchidectomy was performed In fifty cases the undescended testicle was brought down into the scrotum, in one case it was dropped back into the peritoneal cavity In nine cases orchidectomy was done in the course of the operation on account of tuberculosis, gumma or other lesion of the testicle

In many cases operations for other conditions, such as gallstones, ventral hernia, stricture of urethra, etc, were done at the same sitting

The anesthesia was general in 1,319 cases Spinal anesthesia was used in eighty-nine cases Spinal anesthesia was supplemented by general in nine cases, and local in six cases Local anesthesia was used alone in seventy-five cases There was one case of rectal anesthesia, and one case in which the anesthetic was not stated

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* Read before the Section on Surgery, General and Abdominal, at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

[1] Coley Keen's Surgery, vi

Accidents of operation were reported as follows Injury to the bladder in two cases, with immediate suture, without ill effect The vas deferens was reported cut seven times, in one case end-to-end suture was attempted In two cases a small nick was made in the bowel and immediately sutured without bad result There were no cases of injury to the iliac vein

There were eight deaths in this series, a mortality of 0 53 per cent In two of these fatal cases there were complicating conditions present which were largely responsible for the result One case was that of a man of 63 with diabetes mellitus, having a scrotal hernia and symptoms of severe cystitis Under spinal anesthesia a suprapubic cystotomy was done, it was then found that there was a hernia of the bladder through the inguinal canal As the bladder could not be withdrawn through the hernial opening, the inguinal canal was opened and a stone was found in the portion of the bladder lying in the hernial sac The stone was removed, the inguinal canal repaired and bladder closed about a suprapubic drain The patient died of sepsis This unusual case might, I think, fairly be left out of hernia statistics

In the other complicated case a ventral hernia was repaired at the same sitting, general peritonitis developed, with fatal result Necropsy showed that the peritonitis developed from sepsis in the ventral hernia wound In this case it is manifestly unfair to burden the inguinal hernia operation with the fatal result This leaves six cases of straight hernia with fatal issue In three cases death occurred suddenly, and unexpectedly, on the fifth, thirteenth and fourteenth days, respectively, and was ascribed clinically to pulmonary embolism There were no necropsies

In one case the patient, a feeble man of 69, with double hernia, gradually petered out and died comatose on the tenth day

In another case of double hernia a large hematoma developed which was subsequently drained A secondary operation was performed on the eighth day on account of abdominal pain, distention and vomiting, with high temperature Perforated ulcers of the colon were found, with general peritonitis Necropsy showed no direct connection between the hernia operation and the peritonitis, which was evidently the result of perforation of ulcers of the colon

In the last case death resulted on the eighth day, with symptoms of vomiting, distention and jaundice Necropsy showed focal pneumonia, and extensive hemorrhage into the mesentery and retroperitoneal tissues

Nonfatal postoperative complications of more or less severity developed in 438 cases, or 28 per cent , some of these were trivial In many cases the complications were multiple

COMPLICATIONS

Sepsis—In 158 cases the wounds failed to heal by first intention In ninety-three cases the sepsis was trivial, consisting either of a stitch abscess, or more often a collection of serum which required draining In many of the latter cases probably no infection was present, cultures were not made In sixty-five cases there was frank pus in the wound, under 4 per cent of the total number of wounds

Of the seventy-five cases in which operation was performed with local anesthesia, sepsis developed in the wounds in thirteen cases, or 17 per cent

Of the eighty-nine cases in which operation was performed with spinal anesthesia, there were nine septic wounds, or 10 per cent

Hematoma—In 112 cases the development of a hematoma was mentioned in the record, in twenty-seven of these cases it was stated to be slight Marked and extensive ecchymosis was noted in two cases, in one of these it extended to the chest wall In both cases it subsided spontaneously

Subsequent orchidectomy became necessary in five cases, once on account of tuberculosis, and once on account of sloughing of a transplanted undescended testicle

Complications in the Respiratory Tract—These were of common occurrence, namely, 138 cases (9 2 per cent) distributed as follows Frank pneumonia was reported in seven cases, questionable pneumonia in one Bronchitis was recorded in forty-eight cases, postoperative cough, with slight temperature, in forty-three, pulmonary infarct, two, pleurisy, one, colds, six and tonsillitis, thirty

Respiratory complications were by no means abolished by the use of spinal or local anesthesia, this probably was partly due to the fact that these forms of anesthesia were selected on account of chronic bronchitis or cough on the part of the patient At any rate, respiratory complications occurred in twenty-five of the 170 in which spinal or local, or a combination of the two were used, nearly 15 per cent Of these, one case of pneumonia and one fatal case of pulmonary embolism followed spinal, and one nonfatal pu[illegible] esk of infarct local, anesthesia

Miscellaneous—There were many miscella[illegible] sthis complications distributed as follows otitis media, [illegible] one measles, one, cholangeitis, one persistent [illegible] ie to- three, phlebitis, three, acidosis, two, pyelitis, [illegible] with ataxic paraplegia, one (this was not a case of spinal anesthesia) There were three cases with marked postoperative mental symptoms, one with delirium, and two with hallucinations and attempted suicide The latter were both cases of spinal anesthesia

END-RESULTS AND RECURRENCE

End-results were obtained through the routine follow up system of the hospital, no special effort being made to trace cases for this report The hospital system consists of sending a letter to each patient, one year from date of discharge, requesting return to the hospital for examination, if this is impossible, report of condition by letter is requested

As already stated, eight patients died in the hospital after operation Data subsequent to discharge were obtained in 754 cases, just over 50 per cent , in which 140 patients reported by letter and 614 reported in person for physical examination Eleven patients died of intercurrent disease during the year, 577 were reported unequivocally well, or cured, 38 per cent of the total number operated on, and 76 per cent of those whose subsequent histories are known Ninety-nine patients are classed as relieved, fifty of these were cured of the hernia but complained of subjective symptoms more or less closely associated with the wound The commonest complaint was of pain in the wound, especially when working or lifting Two complained of persistent numbness in the inguinal region Of the others in the relieved class, seventeen patients had no actual recurrence of hernia but a bulge in the region of the scar, eight had marked varicocele, five were cured of the hernia for which they were operated on, but subsequently developed hernia elsewhere, three had atrophy of the testicle, two had keloid in scar, one had a persistent sinus, one developed adenocarcinoma of the sigmoid, and one was cured of hernia but had incontinence of urine There were six cases of miscellaneous and unclassifiable complaints

Fifty-nine patients had definite recurrence within the year, five of these had double recurrences, two are known to have recurred after the lapse of a year, making a total of sixty-six recurrences, or 3 7 per cent of the total number of operations performed, and 8 + per cent of the number of cases traced There were six cases in which there was questionable recurrence In two of these, relapse was claimed by the patient but could not be found by the examiner If these six cases are counted as recurrences, the percentage is raised to 9 per cent of the cases traced

Of these recurrences, twenty-six, or 3 1 per cent, followed the Bassini operation, and thirty-four, or 4 4 per cent, the Ferguson

In the sixty-seven cases of recurrence or questionable recurrence, postoperative sequelae were distributed as follows cough, eleven cases, hematoma, nine, and sepsis, four

In the 112 female cases there were only two recurrences

Of the eighty-eight direct hernias there were recurrences noted in seven, or 7 9 per cent, or 15 per cent of the direct hernia cases traced

There were only two relapses out of seventy-five in which operation was performed with local hesia, 2 5 per cent of recurrences, but it must rne in mind that these were for the most part the [illegible] types of cases

imons found in his study of hernia that recurrence practically always takes place within six months after operation This is undoubtedly true for the great majority of cases, but like all generalizations is subject to exceptions In two of our cases counted among the recurrences, the patients were reported well at the end of the first year Others which we do not know about may also have relapsed since the expiration of the year

SUMMARY AND CONCLUSIONS

In summing up this statistical study of inguinal hernia, I desire to emphasize the following points

The results of operation are on the whole good, better than might be expected under the conditions The operation, however, has a definite, though low, mortality rate, and should not be undertaken in the old and the infirm without good reason

Postoperative cough, hematoma and sepsis are important factors in the incidence of recurrence, but the latter complication seems to play a lesser rôle than is generally assigned to it

A strikingly large number of patients anatomically cured complain of pain, probably due to nerve traumatism

General anesthesia is still best in the routine case Local anesthesia is very satisfactory, and has a wide application in cases in which inhalation anesthesia is contraindicated, but carries a slightly greater risk of sepsis, and hence probably of recurrence too, although the latter conclusion is not borne out by our figures Spinal anesthesia, on account of its greater danger and serious sequelae, should have little place in this operation

Careful study of the results in this series of cases reaffirms the importance of the well recognized surgical principles of clean anatomic dissection, conservation of nerve supply, high closure of sac, securely accurate coaptation of tissues without constriction, and complete hemostasis, in the attainment of success in the operation for inguinal hernia

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ABSTRACT OF DISCUSSION

Dr **Henry O Marcy**, Boston Tracing the development of the male during the late fetal period we note the extrusion of the testicle from the abdomen and the carrying with it of the peritoneal covering investing the vessels and vas deferens, making up the spermatic cord Normally, the peritoneum is so closed in about the structures at the exit from the abdomen that only by pulling on the cord do we note the slight depression on the peritoneal surface, which lines the abdomen at this point When the *opening through the* abdominal wall is imperfectly closed there results a more or less marked depression of the peritoneum described by Cloquet as normal anatomy and called by him the "infundibular process of the peritoneum" This defective closure of the internal ring is the usual cause of indirect hernia, although it may not occur until an advanced age When normally developed the intra-abdominal pressure is at right angles to the canal and firmly closes it The reconstruction of the canal to its normal size and obliquity is the sine qua non in the cure of hernia In 1870 I operated on a large strangulated hernia and closed the wound with buried catgut sutures The cure remained permanent My first publication for the cure of hernia was in November, 1870 I instituted a long series of studies on animals to determine the role of buried animal sutures and published many articles on their advantages I early emphasized the reconstruction of the inguinal canal, to its normal size and obliquely as safe, easy and permanent The cure of hernia was established on a firm basis In 1882 I first obtained tendons from the tail of the kangaroo and introduced their use as a suture material in every way superior to catgut Corroboration of the principles and practice which I have so long advocated is now ample All aseptic wounds closed with buried aseptic tendon sutures will remain aseptic and in well vitalized structures will be followed by *primary union* The aseptic absorbable animal suture, preferably tendon, I consider my best contribution to surgery and the cure of hernia is dependent on their wise use For a long period it has been a far too common custom to accredit to European writers much that belongs to our profession To Bassini, honor is due for his excellent work, but in method, experience and publication he is antedated by a number of American surgeons At last the cure of hernia should be called the "American method" With all the emphasis of an earnest conviction, I commend to every aseptic surgeon familiarization with the methods of wound closure by means of buried absorbable sutures, and not alone predict their early general adoption but that, in importance, *they have the first place* in the technic of modern aseptic wound treatment

Dr **Daniel Nathan Eisendrath**, Chicago Hernias in hospitals are generally operated on by the house men and careful supervision is not given to a series of operations by one operator I was very much struck with one point made that was the frequency of sepsis in cases with local anesthesia I have had that experience in my early cases, but since I have diluted the epinephrin I have not had experiences of that kind I think we use epinephrin as a local anesthesia too strong and we have a reduction in the vitality of the tissues which favors intervention Instead of using 4 or 5 drops of a 1 1,000 solution to the ounce I seldom use more than 1 drop A second point to which I wish to call attention is some of the causes of recurrences I think we are very apt to forget that there are in a large number of hernias a series of diverticular sacs I mean the sacs which come out from the internal ring and form a double sac, i e a short trouser leg and a long trouser leg Many of us were formerly satisfied with dissecting up and ligating the neck of the sac We think we are ligating high up Whenever I find one having on the outer aspect a great deal of fat I put my finger in and see if there is a diverticulum, i e, a pantaloon sac Another cause is the comparative frequency of the concomitant occurrence of the direct and indirect hernia on the same side, parallel with each other and we are apt to overlook either the direct and the indirect The next point is one Dr Davis calls attention to, viz, the frequency of pain following hernia operations, and I have learned to be careful not to include any nerve fibers in my sutures At the Michael Reese Hospital in Chicago, we uniformly do the Andrews operation of imbrication It is the ideal operation in the type of cases of which we see so many, those with the very weak conjoined tendons Our best result is in transplanting the cord invariably I have not made an exception except in cases of undescended testes The reason why this Andrews operation with the transplant of the cord is the ideal operation is that if you do not transplant the cord you have at the lower end a space that represents the pubic bone You must make allowance for hard bony material with suture material If you do transplant the cord you can work the many muscle tissues I think that is the reason why a great many of these cases have recurrences, for the 34 per cent of the total number of recurrences following the Ferguson operation

Dr Edward W Lee, New York To what extent, if any, does Dr Davis consider that traumatic hernias exist? Is there such a thing as traumatic hernia? Is there not a condition that predisposes to hernia that would let hernia be produced? I ask this question because in connection with a former paper the workman's compensation law and medicolegal cases this question is becoming one that somebody has got to decide very definitely to determine whether we actually have what may be called traumatic hernia

Dr Lincoln Davis, Boston In regard to the question just asked I do not know I have no data on traumatic hernia It is my belief that there is a predisposing factor present in all these cases, probably a pouch in the peritoneum which enables the bowel to come through suddenly, but I really have not gone into that question I agree entirely with what Dr Eisendrath said in regard to the double sac I think that is a very important matter, and I have frequently found a direct hernia accompanying indirect and I think it is the direct hernia which is the problem to cure Particularly in those direct hernias, I think Dr Andrews' operation of imbrication and overlapping the layers is of great value As to sepsis in local anesthesia, I think our figures are altogether too high and we have perhaps been a little slow in taking up local anesthesia I think we are going to use it more and more I am a little bit in doubt myself as to whether you can do quite as secure a closure under local as under general anesthesia I think the infiltration of the tissues around the neck of the sac interferes with the most accurate and firm closure of the sac We have not followed enough cases that have been done under local anesthesia to be convinced on that point Dr Marcy showed how the obliquity of the canal is one factor in preventing hernia and that is the condition that you wish to restore and it is for that reason that the direct hernia is so much more of a problem than the indirect I found in these statistics which I have given you that there was very little difference in the percentage of recurrence between the so-called Bassini and Ferguson operations It was a little less than 1 per cent, I believe

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Loss of Weight of Musk—Most of us remember that in our high school days the odor of musk furnished an illustration of matter in a finely divided molecular condition We were taught that musk may give off odor indefinitely, meanwhile retaining its fragrance and weight unimpaired, or, at least, that any hypothetical loss of weight due to the subtraction of odoriferous particles was not susceptible of demonstration by the most delicate scales According to the *Journal of the Franklin Institute*, however, this has been experimentally disproved It is stated that musk, exposed for about seven months to a current of dry air, loses weight When the loss of weight has ended, the musk is odorless, and its fragrance cannot be restored by exposure to damp air

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THE PREVENTION OF OBSTRUCTION OF THE PASSAGE OF GAS

FOLLOWING OPERATIONS ON THE COLON *

A J OCHSNER, MD
CHICAGO

A review of our work in surgical operations on the colon, as well as a review of the literature on this subject, impresses one most forcibly with the fact that, barring sepsis, which is now almost never encountered, and necrosis due to interference with the blood vessels or tension, both of which conditions can readily be avoided, the greatest danger to the patient comes from tension caused by obstruction to the passage of gas following colon operations It seems, consequently, wise in performing any operation on the colon to plan the operation in such a manner as to make it impossible for a sufficient amount of gas to accumulate above the seat of the operation to endanger the success of the operation If the surgeon has this fact definitely in view, it is usually not difficult to plan some provision which will be effective in preventing this source of danger Several of these provisions have been fully described by a number of surgeons, but so far as I have been able to determine, the subject as applied to the entire colon has not received a due amount of consideration in surgical literature, and it seems worth while to undertake the task of presenting this subject at the present time together with diagrammatic drawings of the actual steps which we have employed in our clinic for this purpose

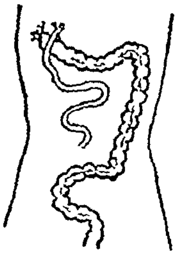

Fig 1—Francis Reder operation anastomosis between ileum and colon

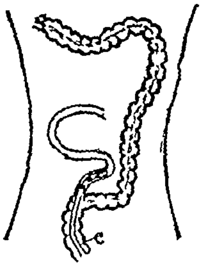

Fig 2—Excision of cecum anastomosis between ileum and sigmoid flexure *C* drain extending into ileum

Francis Reder has described an ingenious method for preventing pressure from gas in cases in which the cecum has been removed and in which the ileum is implanted into the transverse colon, as shown in Figure 1 The end of the ileum is passed out through a buttonhole in the abdominal wall about 10 cm beyond the point at which the anastomosis between the closed end of the transverse colon and the end of the ileum is made A tube is inserted into the free end of the ileum which will permit the gas to escape which may accumulate in the ileum, until perfect healing has taken place between the ileum and the transverse colon, and until the enterostomy opening functionates perfectly When the drainage tube is removed, the remaining wound will heal spontaneously If there is any difficulty about the healing of this wound, this can be stimulated by touching the lumen of the projecting intestine with the actual cautery

In case the distance between the free ends of the ileum and the transverse colon is so great that an anastomosis cannot be accomplished without the use of a degree of tension which might endanger the vitality of the intestine, the same operation may be performed with equal safety by closing the free end of the transverse colon, as indicated in Figure 2, and making an anastomosis between the ileum and the lower portion of the sigmoid flexure and carrying a rubber drainage tube, 1 5 cm in diameter, up through the rectum and through the enterostomy opening into the ileum and fastening it in position by means of a few fine silk sutures at the point of anastomosis, a method which was introduced by Sir Arbuthnot Lane in connection with his operation of short-circuiting for the relief of intestinal stasis

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* Read before the Section on Obstetrics Gynecology and Abdominal Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

In performing this operation for intestinal stasis, an additional step in the same direction, represented in Figure 3, may be added by leaving the cut end of the ileum which remains attached to the cecum open and passing this out through a buttonhole in the abdominal wall at a point opposite McBurney's point This will enable the patient to irrigate the cecum freely in case there should later be backing up of fecal material into its lumen This irrigation may be preceded by the injection through the artificial opening of glycerin and oil in order to soften the accumulation contained in the colon

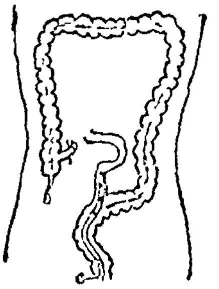

Fig 3 —Anastomosis between ileum and sigmoid stump of ileum placed through buttonhole in abdominal wall, with drainage tube extending through anastomosis opening

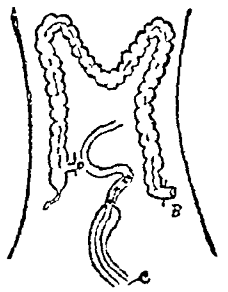

Fig 4 —Exclusion of colon stump of ileum and sigmoid passed through stab wound in abdominal wall, anastomosis between ileum and sigmoid

To the last step of this operation may be added an operation which was introduced by Dr William J Gillet of Toledo, Ohio, which is illustrated in Figure 4 The sigmoid flexure of the colon is severed near its lower end, and the proximal segment is passed through a buttonhole in the abdominal wall at a point marked *B* in Figure 4 The ileum is drained by means of a tube after the method described in connection with Figure 3 The tube is shown in position also in Figure 4 This operation makes it possible to leave in place the entire colon together with the omentum The amount of drainage from the artificial opening connected with the colon is so slight that it does not materially inconvenience the patient, and still it affords the patient absolute protection against the accumulation of fecal material within the lumen of the excluded colon This step reduces the danger of the exclusion of the colon enormously and increases the comfort of the patient very greatly, because the presence of the omentum will protect the small intestine against adhesions to the abdominal wall and against discomfort from changes of temperature

In operations for intestinal stasis, this operation is very much simpler and safer than the operation which contemplates the removal of the entire colon, and it is in every way equally effective It is not absolutely necessary to bring out the ileum through a buttonhole as shown in Figure 4, because, if there is an accumulation in the excluded colon, this can be removed by giving an enema through the opening *B* In very stubborn cases of intestinal stasis, however, it seems that it is preferable to have both openings, so that thorough irrigation can be made use of

In case a tumor or diverticulitis of the sigmoid has to be removed, leaving sufficient intestine to make it possible to reunite the severed ends, it is possible by following this method to establish entirely satisfactory conditions The colostomy, *B*, Figure 4, can then be placed in front of the distal end of the remaining colon In case the tumor or diverticulitis is located in the descending colon, the excluded colon may be drained through an opening as indicated at *B* (Fig 5), or at any other point immediately in front of the free end of the remaining colon In this case also the remaining portion of the sigmoid and rectum and the lower end of the ileum are drained by means of a rubber drainage tube 1 5 cm in diameter, sutured in place as indicated by the dotted lines *C* in Figure 5 Here again the stump of the ileum, which remains attached to the cecum (Fig 6 *A*), may be closed with sutures, leaving the lumen of the remaining portion of the colon open at the point *B* (Fig 6)

In cases in which the tumor or diverticulitis is located in the sigmoid flexure, in which the size of the tumor and its location make it possible to remove the entire growth and still preserve a sufficient amount of the intestine to anastomose the upper and lower ends directly, the method which has been described by Gibson, and illustrated in Figure 7, furnishes perfect conditions The operation consists in fastening a rubber drainage tube of proper size into the upper segment of the colon by means of sutures, as shown at *A*, in Figure 7, and then invaginating the upper segment *A* into the lower segment *B*, as indicated at *D*, in Figure 7, and then uniting the two ends by means of two rows of carefully applied sutures The drainage tube *C* carries away all the secretions that come from segment *B* of the colon, and by nourishing the patient entirely for a week or ten days by means of proctoclysis through the tube *C*, making use of some predigested food, it is possible to prevent accumulation completely in the remaining portion of the colon

The same principle works out with equal satisfaction if a tumor has to be removed from the ascending or transverse colon in cases in which the amount of intestine to be removed is not sufficient to make union between the upper and lower segments possible by means of direct anastomosis In all of these cases, however, the upper segment of the colon has usually been overdistended because of the presence of the obstruction of the tumor or diverticulitis, and it is consequently sometimes difficult to invaginate the upper into the lower segment, unless the drainage tube which has been chosen, as shown in Figure 7 *C*, is sufficiently small to prevent overfilling the lumen of the lower segment In all of these cases, the use of proctoclysis with normal salt solution, to which some concentrated, predigested food has been added, will greatly facilitate the keeping of the colon free from gas

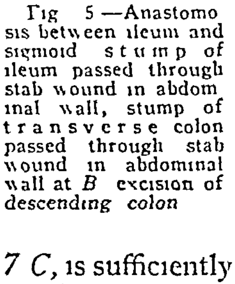

Fig 5 —Anastomosis between ileum and sigmoid stump of ileum passed through stab wound in abdominal wall, stump of transverse colon passed through stab wound in abdominal wall at *B* excision of descending colon

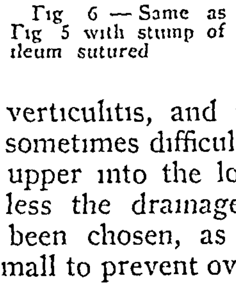

Fig 6 —Same as Fig 5 with stump of ileum sutured

In any operation on the colon in which the surgeon is not absolutely certain that he can obtain free passage of gas past the seat of operation by employing one of the various methods that have just been described or some other equally efficient method, it is always wise to place a rubber drainage tube into the lumen of the cecum or ascending colon, as shown in Figure 8, and to pass this out through a stab wound in the abdominal wall directly in front of the point at which the intestine has been perforated for drainage It is well to use for this purpose a drainage tube 1 cm in diameter over which a second drainage tube has been pulled which is just large enough to grasp the inner drainage tube when this has been pulled inside of the lumen of the other tube by attaching a cord to the inner tube and threading this through the outer tube, and then, by putting the inner tube on a stretch, the outer tube can be drawn on this readily and as soon as the inner tube is relaxed it will fit tightly within the grasp of the outer tube as shown in Figure 8 *A* It is then possible to suture the outer tube to the colon at the point at which it has been perforated so as to prevent leakage, the sutures passing only through the outer tube and leaving the inner tube entirely free for drainage The colon is then pulled up tightly against the peritoneum opposite the stab wound, through which the drainage tube is carried out, and a few fine sutures unite the colon to the peritoneum and the transversalis fascia, thus making leakage impossible This tube may be utilized for making proctoclysis or introducing liquid food or oil into the colon

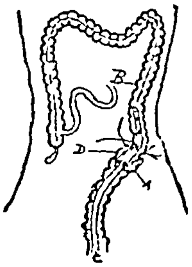

Fig 7 —Reuniting of colon after excision of tumor *A* attachment of colon to drainage ube *C* *B* descending colon *D* telescoping of upper into lower segment

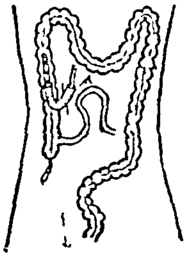

Fig 8 —Double drainage tube *A* applied to colon proximally to obstruction to prevent accumulation of gas

This method is also most useful as a preliminary operation in cases in which there is an obstruction in the colon in a patient whose condition does not warrant an immediate operation The patient can in the meantime be tided over the critical period and operated on when the bad effects of the acute obstruction have subsided This operation is also especially useful in cases of complete obstruction of the colon in very old patients, such as have been described very fully by Schumacher, in which no mechanical obstruction can be demonstrated, but who nevertheless are suffering from a complete obstruction It is also useful in cases of cancer of the rectum in which one desires to make an excision of the tumor and bring down the sigmoid into the wound in the perineum at the time of the final operation, although in these cases an inguinal colostomy will more completely divert the contents of the colon, leaving the portion to be operated on entirely free from fecal material There can be no doubt that drainage is absolutely indicated in these cases, and that the methods which have been illustrated above are simple and efficient, I am convinced by having employed them in a very large number of cases, which the lack of space prevents me from reporting at this time

ABSTRACT OF DISCUSSION

Dr. W D Haggard Nashville, Tenn Every surgeon knows the difficulties we had originally with the operations on the colon when we found that the Murphy button, until then our greatest dependence, was liable to be blown out by gas pressure The Mickulicz operation has been so satisfactory because we could arrange for the immediate escape of gas if necessary If gas does not pass over the extraventrated segment it is a simple matter to make a colostomy with a rubber catheter to allow gas to escape The objection to the first operation diagrammed here is the possibility of fistula from the small intestine To avoid this in an enterocolostomy it is advisable to leave the wound partly open down to the fascia and pack with gauze The anastomosed area can be sutured gently to the abdominal wall In a day or two, if the gas does not pass out, one can easily spread open a portion of the anastomosis with blunt scissors The great majority of cases will not need this, but when it is needed it can be employed easily and simply If no vent for gas is found necessary, there is no fistula left to deal with later The utilization of the stomach, as illustrated in the drawing passing through the rectum and through the opening into the small intestine is a real life saving procedure The same can be said of the ultimate effect of the anastomosis of the small intestine into the sigmoid for real disease, but not for stasis because we do not know exactly what the trouble is, and neither do the intestines Another useful procedure is the utilization of the appendix, as described by Mayo of bringing it out on the surface and cutting it off flush with the skin and inserting a catheter for the escape of gas

Dr Charles A L Reed, Cincinnati The operation described in Figure 1 is very interesting I have accomplished the same purpose by making an end to side anastomosis and folding the end of the ileum into the side of the stump of the colon then fixing the open end of the colon in the wound In Figure 2 the only objection to leaving the upper end of the colon open is the occurrence of retroperistalsis with discharge of more than gas After a while however it can be closed, and in the majority of instances, it will close itself The ileocecostomy, as indicated by Dr Ochsner, is an operation which I have practically abandoned because the reflux into the colon defeats the purpose of the operation I cannot agree with Dr Haggard that the presence of a stomach tube through the rectum and cecum into the small intestine is a life saving procedure which should be a source of comfort to the surgeon I have found that the procedure sometimes causes angulation of the small intestine sinks in like a lead pencil and the ileum angulates over it in a dangerous way If any tube be inserted it should not be stiff, but a very soft flexible or rubber tube These various other expedients, as they have been presented, simply show that in dealing with the intestinal problem, you have a large range of liberty, a large number of resources, and, given the mastery of the principles of intestinal surgery, the details will be determined by the case in hand at the moment of operation The real surgeon never does any particular operation, he operates

Dr A J Ochsner, Chicago The suggestions that have been made are very good I have found no difficulty from leaving the ileum open, because the piece of ileum has been of sufficient length to close immediately on pulling out the drainage tube, which is not shown as being present in the drawing because I feared it might obscure the idea of placing the ileum in the particular position shown I have used the Murphy button many times in making the anastomosis between the ileum and the colon, but I have had bad luck in two cases which I would not have had if the colon had been left open, which, of course, provides safety against the accumulation of gas and at the same time enables one to remove the button if it makes trouble

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Research —The university is the natural home for research The development of research institutes, except of those that have been built up around a great genius and during the period of the active life of such a man, is apt in the long run to be more of a menace than help to the work of investigation In a way the establishment of these institutes is a measure of university inefficiency They mean that the universities have failed to rise to their full possibilities as centers of mental activity —R L Wilbur

THE SUPERIORITY OF THE RIGHT SIDE ANUS

IN THE HANDLING OF PARTIAL AND COMPLETE OBSTRUCTION OF THE LOWER COLON AND SIGMOID IN CASES UNSUITED FOR RADICAL OPERATION *

JOHN YOUNG BROWN, MD
Fellow of the American College of Surgeons
ST LOUIS

Partial and complete obstructions are frequently encountered resulting from neoplasms, both malignant and benign, of the lower colon and rectum The diagnosis of obstructions of this type can readily be made, the majority of them giving a history of chronic constipation with recurrent attacks of partial obstruction The malignant types almost invariably present a history of bleeding and sloughing prior to complete obstruction

When a patient is admitted to a hospital giving a history of acute obstruction of probably two or three days' duration, with stercoraceous vomiting and profound toxemia, it is not possible, nor is it necessary, to make a refined diagnosis of the exact character of lesion in the rectum or colon which is responsible for the obstruction, or whether it is due to intra-intestinal or extra-intestinal pathology

The question that confronts the surgeon is how he can quickly and safely relieve the patient of the immediate cause of his illness, and in doing this, take fully into consideration the possibility of subsequent radical work In a large majority of such cases it will be found after the acute condition has been relieved that they are inoperable from a radical standpoint However, in a certain number of cases, it will be found that when the patient reacts from the acute condition, radical work can be done In a series of six cases of acute obstruction of this type the writer has been able, by means of an ileal anus on the right side and exclusion of the large bowel, to relieve without mortality, these six acutely obstructed patients

The right side anus has been chosen by the writer for the following reasons

1 *It can be rapidly made*

2 It admits of immediate and proper drainage of the distended bowel above the obstruction

3 It excludes completely the large bowel, and we have found that as soon as the fecal current is turned from the large bowel, partial relief of the obstruction in the excluded bowel follows in a very short time, irrigations through the tube passed through the ileocecal valve and the use of the rectal tube will result in complete evacuation of the contents of the large bowel

4 Should it become necessary to reestablish the continuity of the bowel, this can be done with the greatest possible ease Whereas, if a left side colostomy had been done the colostomy would have relieved the acute condition, but in the event that subsequent work became necessary, the difficulties of restoring bowel continuity would stand out in marked contrast to the ease with which this can be accomplished when the this is on the right side

In one of the writer's cases the obstruction was due to an old pelvic inflammation in which the sigmoid and [illegible] participated In this case a radical operation was subsequently performed and the patient is now in excellent health

The possessor of an artificial anus is not to be envied It is, however, astonishing how little discomfort results from the anus *on the right side* There is comparatively no odor to the discharge, and with a properly adjusted receptacle the patient can live in comparative comfort While the anus on the left side can be more readily controlled, the odor from an anus of this type is most objectionable

The technic of the operation is as follows Prior to giving the anesthetic, the stomach is washed until the water comes back clear Under ether or gas, incision is made through the outer border of the right rectus muscle The cecum is located and the small bowel is pulled up, clamped and cut across two or three inches above the ileocecal valve One half of a Murphy button is fitted in a good-sized rubber tube This is inserted and purse-stringed in the proximal intestine A tube of the same size is next inserted into the distal ileum and through the ileocecal valve This is held in position by a purse-string Both the proximal and distal ends of the intestine are brought out and fixed at the lower angle of the incision The wound is closed in the usual manner The protruding bowel and tubes are carefully surrounded by gauze, and the stomach is again washed out before the patient leaves the table The tube through the ileocecal valve gives exit to the gas contained in the large bowel, whereas the tube in the proximal ileum drains the small bowel

In the event that subsequent radical work becomes necessary, this can be done in a manner to meet conditions If the original obstruction was due to extra-intestinal pathology, this pathology can be removed and the restoration of bowel continuity can be made by doing a lateral anastomosis or an end to side anastomosis of ileum to cecum If resection of the colon becomes necessary, the fact that the large bowel has been excluded enables the operator to work on the left side under ideal conditions

ABSTRACT OF DISCUSSION

Dr Jerome Morley Lynch, New York I am very glad to know that the profession is beginning to recognize the value of ileostomy in surgery This operation is comparatively old It was first performed twenty years ago by an Italian Reference to it is scattered through the literature At the time I first performed this operation, for a definite purpose, nearly four years ago, it was on one of my associates, Dr Treby Lyon, who had a very severe infection of the bowel which quite incapacitated him The results of our investigations in that case were published We were fortunate in having a physician to experiment on as he became very much interested in the work The contents of the ileum were examined at the Yale laboratories The patient was taken to Wood's Hole and there Dr Bradley investigated the enzymes from the lower ileum Other experiments and observations were made, all of which are on record The most important lesson from this case was that the patient with an ileostomy is just as comfortable, if not more so, as a patient with a colostomy The patient has gained 40 pounds, is back in practice, and his condition does not interfere with his duties He refuses the risk of having the ileostomy closed because of polyposis I operated on the wife of a New York physician under novocain This woman, who had been bedridden for a year, was able to take up her household duties within a short time after the ileostomy was performed, but most remarkable of all was the sudden and complete restoration of her mental faculties, which had been deranged for a year Indeed, she had not known her family for more than three months prior to operation She was mentally clear in thirty six hours Dr Draper and I have thought this sudden change suggested strongly a relationship of this toxemia to the nonbacterial form shown by us to occur after duodenal obstruction

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* [illegible] the Section on Obstetrics, Gynecology and Abdominal [illegible] Seventh Annual Session of the American Medical [illegible], 1916

Dr J Shelton Horsley Richmond, Va I recently had a case in which I believe the operation of Dr Brown saved the patient's life and naturally I feel kindly toward it The patient had multiple papillomas of the colon which had become ulcerated and were discharging blood and mucus Under the Brown operation he picked up wonderfully, though he is not yet well Dr Brown says he uses the lower stump of the ileum, but the abstract of his paper in the program refers to the cecum as the point at which he inserts the tube for irrigation of the colon I think the ileum has many advantages First, the ileocecal valve prevents the back flow from the cecum Second, if later the fecal current is to be reestablished through the colon it can be done through the distal stump of the ileum if 6 or 8 inches of it are left, and so the beneficial effect of the ileocecal valve in preventing the flora of the large bowel from having free access to the ileum will be maintained If the ileum is cut across close to the cecum and the cecum opened it would be necessary in reestablishing the fecal current to anastomose the ileum directly to the cecum or colon

Dr John Young Brown, St Louis We insert the tube in the distal gut and through the ileocecal valve It is retained by a purse-string In the proximal bowel half of a Murphy button is fastened into the rubber tube This is inserted after the bowel has been drained The button is simply used to retain the tube in the proximal gut One of the most astonishing things following this simple operation is the rapidity with which the excluded large bowel clears up By the use of the rectal tube and irrigations through the distal tube the excluded bowel can be cleansed thoroughly in a very short while In regard to accurate diagnosis in obstructive lesions of the sigmoid, colon and rectum, this is made with great difficulty The same conditions present themselves in this locality that are found in the upper abdominal tract Yesterday Dr Crile reported three or four cases of pyloric obstruction in which, at the time of operation, with the pathology in his hand, a diagnosis of malignancy was made Following gastro-enterostomy these cases cleared up, proving conclusively that there existed no malignancy The same thing we find in the lower colon The high mortality in intestinal obstruction is due to three causes First, late operations, second, too much surgery, and third improper treatment prior to operation and the bad handling of these cases after operation

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LIPECTOMY AND UMBILICAL HERNIA *

WALTER LATHROP, M D

HAZLETON, PA

The fact that umbilical hernia is a dangerous abdominal condition, if allowed to exist without an attempt at relief, is sufficient reason for calling attention to this defect of anatomy The radical treatment by the overlapping, or Mayo method, is so well known that it seems almost superfluous to mention it, but it is valuable enough to stand repetition

After birth there are several changes that take place in the closing of the umbilicus Bickham says

1 Contracture and shrinking of the umbilical ring dividing by its closure the umbilical vessels running through the ring, 2 Clotting of the vessel contents proliferation of connective tissue, and contraction of the muscle fiber of the vessels as a result of this, a firm fibrous scar is thus formed at the site of the umbilicus

We can easily understand that the scar tissue may remain weak for some time, and also may be subjected to strain, and later give rise to hernia, which usually comes by way of the umbilical ring, or may even come through the abdominal wall in the vicinity of the ring Women are more subject to this hernia than men, the proportion being about twelve to one The relaxation of their abdominal muscles, especially distention due to pregnancy, tends toward this condition These hernias often reach a very large size, and may contain omentum, stomach and large intestine Usually it contains the former, and when of long standing has numerous pockets or sacs, is often irreducible and painful, and always a source of danger from strangulation I had one case in which there was a complete diastasis of the recti muscles There was an enormous mass hanging down, consisting of intestines, omentum and a distended gallbladder The trouble began after pregnancy, and was given no attention till after the third child was born, when the extreme protrusion, discomfort and pain caused the patient to seek aid Belts and pads were used in vain, and she finally came for operation The adherent structures were separated with difficulty, the gallbladder was opened and a large number of stones removed The gallbladder was closed without drainage (at present I would do a cholecystectomy) and gave no more trouble The diastasis was closed by overlapping the fascia, and a continuous Cushing mattress suture was used The patient made a good recovery and had no sign of recurrence after ten months

Before the advent of the overlapping method in ventral hernias, the treatment of these conditions, especially when of large size, was very unsatisfactory and often meant a recurrence within a very short time When muscle was used it formed a weak point of resistance to abdominal pressure, and we know that fascia is essential for support in these cases, for the aponeurotic structures are very strong, and by the overlapping we have a splendid plane of resistance The technic is too well known to need any description before this section

It is in connection with umbilical hernias and pendulous abdomens that I wish to dwell on the subject of lipectomy, or excision of fat from the abdominal wall Kelly in 1910 put the operation on a firm basis, though Maylard, Schultz, and Meinhold had previously reported cases in which sections of fat were deliberately removed to restore contour and comfort to obese women, whose abdomens were large and whose fat was the cause of much discomfort Lipectomy is a very beneficial procedure in nearly all indicated cases We all know that when fat becomes excessive and fails to perform its functions it becomes a nuisance, and a burden to its owner Fat has, among its uses, the preservation of structure and the aiding of beauty by rounding out or helping the symmetry of the body An extra amount renders the usual activities of life a burden when exercise is needed, enjoyed or demanded If sedentary habits are aided by the possession of too much fat, the vital organs are more or less affected in their power of metabolic change and the individual usually eats heartily with a continued increase in weight When the fat is distributed evenly, we can only suggest diet, proper hygiene and exercise Such patients need the care of a physician, and are of little general interest, for they usually pay little heed to the advice of the doctor, are often discouraged by slow improvement and become users of patent remedies, of whose virtues they read in skilful advertisements, and thus injure their systems by powerful, injurious con-

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* From the State Hospital Hazleton Pa

* Read before the Section on Obstetrics Gynecology and Abdominal Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

coctions Another class is different, here we have large areas of fat that can be removed, and give relief in most instances Let us consider the accumulation of adipose tissue on the abdomen, as seen so constantly associated with umbilical hernia Exercise is seldom taken in any sort of proper manner, sedentary habits lead to the usual hepatic troubles, to constipation, and more or less cardiac lesions Hernia may or may not be present The woman with a pendulous abdomen frequently wears a so-called form-fitting, or stomach-lifting, corset in an effort to mold the form into a more pleasing appearance, and again these women are prone to eczema, or to chafing in the folds of fat lying in each groin These individuals can be relieved of some of this surplus, and the folds of fat removed from the lower abdomen in sufficient amount to produce comfort and obliterate the soreness, or chafing The operation, whether done deliberately for this purpose, or during the course of operation for umbilical or ventral hernia, is easy to carry out, and requires only careful attention to detail, such as hemostasis, careful apposition, and the provision for drainage at each end of the large incision, as there is oozing of serum and fatty debris for several days If the abdomen is seized above and below, we find a large amount of tissue can be raised between the hands, which when brought together will give an idea of how much should be removed The incision is elliptical, beginning well over on the side and extending to the corresponding point opposite, while its center below is a few inches above the pubis, and the upper above the umbilicus It should go to the fascia, and then the whole amount of tissue in the area should be removed The closure is easy and should be done with deep catgut sutures, reinforced with silkworm gut We usually wipe out the wound with 3 per cent iodin before closing, not forgetting to provide drainage, as already mentioned The after-treatment, if hernia has been repaired, is rest in bed for from eighteen to twenty-five days, a semisitting posture is usually best If lipectomy only is done, then a recumbent position for eight or ten days, followed by back-rest for a few more, and then out of bed The diet is chiefly milk in small quantities and water with lemon juice Patients frequently lose several pounds during convalescence, and if advice is followed as to diet and exercise, they will be greatly benefited for a long time One case is reported in which 65 pounds was lost in a few weeks, including what was excised from the abdomen (Castle)

From one patient I removed nearly 16 pounds She was a very stout woman who had an umbilical hernia She made a good recovery, and four months later had lost a total of 30 pounds and felt better than she had for a long time She certainly looked the part There is little doubt but that lipectomy in properly selected cases is beneficial, and will give enough relief to last a long time, especially if postoperative instructions are followed regarding diet and exercise

In connection with this subject there is a class of cases often trying to the surgeon, and in which a small lipectomy is most helpful I refer to the difficulties of operating on stout patients in whom the thick wall of fat increases the distance from the surface to the parts to be reached, compelling the operator to work in a deep space with a wall of fat on each side Some of these cases make accurate suturing very difficult by reason of this condition, and Howard Kelly[1] has made a valuable suggestion by which the difficulties are overcome in a large measure by an oval incision of skin and fat down to the internal abdominal wall, removing the section either transversely or in a vertical direction, corresponding to, or at right angles with, the deeper incision This removes the thickness of wall down to the fascia, and from there into the abdominal cavity the depth is not great and the opening and closing is made comparatively easy, while final closure of skin is not difficult This also reduces some fat, though of course much less than in a regular planned excision or lipectomy

Kelly,[2] in speaking of these cases, says in part

> I wish to emphasize the value of removing wedges of skin and fat in patients who are not troubled with obesity, but simply and solely for getting rid of part of the thickness of the abdominal wall and making the field of operation more accessible

And as regards lipectomy itself he says

> I do it regularly whenever I have a patient who has a heavy pendulous mass of fat on her abdomen, or in whom the mass of fat is sufficient to make a crease in the lower abdomen and stands in the way of her taking proper care of her person I consider the operation one of sufficient importance to be done solely for the relief it offers in appropriate cases

In bad cases of umbilical hernias a valuable modification of the Mayo operation is made by carrying the incision through the fascia on both sides all the way to, or beyond, the outer border of the rectus muscle This gives a strong, lasting, lateral support and takes the strain off the middle operation at the weakest point of the tissue (Kelly) Wells[3] reports seven cases of umbilical hernia with lipectomy, one patient died from embolus on the seventh day The latest statement of Dr Kelly was in March, 1916, in which he says

> I do lipectomy constantly, either in conjunction with abdominal operations or simply to relieve the patient of the pendulous load of fat I have often seen the results several years afterwards, one recently of five years' duration, in which there is no recurrence, and the abdomen remains with a straight front and well supported

W L Estes states that he frequently makes use of lipectomy, and especially the removal of a section, or wedge, to facilitate easier work in the deep structures

Dr John G Clark[4] says that "where there is an excessive accumulation of fat in the anterior abdominal wall, and where it is giving a great deal of inconvenience, especially in association with a ventral hernia, we invariably take an oval wedge transversely out of the abdomen" Clark[4] further reports the case of a woman who weighed 340 pounds, short in stature, and whose abdominal wall reached below the knees when she was standing She was unable to walk on account of this mass, blood pressure was 180 mm of mercury in one arm, and 240 in the other She insisted on operation, though she was a bad surgical risk He removed a wedge weighing 32 pounds She was toxic for a short time after operation, but ultimately recovered, and went home

Dr T C Cullen[5] reports a case of umbilical hernia in a woman, aged 35, weighing 464 pounds The abdomen hung down to her knees, forcing her to keep off her feet as much as possible She was becoming a semi-invalid, and insisted on having some relief It was decided to do a lipectomy, as advocated by Kelly, in connection with removal of the hernia The size of the area removed, when measured, was 36 inches from side to side, and 19 inches from above downward The omentum in the sac was so intimately blended with the walls that this portion was cut off and removed, together with sac and redundant tissue The hernial opening was closed by the Mayo method, kangaroo tendon being used for mattress sutures The abdominal wound was brought into apposition by silver wire and silkworm gut Drainage was provided The final result was excellent, and the abdominal incision contracted to 27 inches Eight months later the patient was in excellent health It is interesting to note that Cullen[5] describes seven separate conditions of disease or hernia of the umbilicus, namely

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[1] Kelly, Howard Removal of a Skin Fat Wedge, Ann Surg, liii, 364

[2] Kelly, Howard Personal communication to the author

[3] Wells Am Jour Surg, 1916, xxx, 107

[4] Clark, John G Personal communication to the author

[5] Cullen, T C Diseases of the Umbilicus

1 Hernia into the umbilical cord
2 Amniotic hernia
3 Congenital ripping off of a hernial protrusion
4 Small umbilical hernia at birth
5 Serous umbilical hernia
6 Umbilical hernia in the adult
7 Cysts of the umbilicus

Simmons[6] reports the end-results in seventy cases of umbilical hernia operated on in the Massachusetts General Hospital He states that small hernias in children and thin adults may be cured by any operation that removes the sac and closes the defect in the wall

Umbilical hernia in stout adults is difficult to cure, the Mayo operation giving the best results, and by other methods the percentage of recurrence is 46 4 and usually takes place in less than one year

Our own patients whom we have been able to follow have shown recurrence in about 12 per cent of cases, and these were in stout persons, but since the routine practice of lipectomy the cases having a return are fewer

John H Gibbon[7] of Philadelphia reports a case of lipectomy in a woman, 47 years of age, weighing 315 pounds The section removed weighed 21 pounds, and the incision was 38 inches long Six months later this patient came under the care of Dr McCrea, and again weighed 315 pounds Under medication and diet she was reduced to 265 pounds, and she has managed to keep it down and is quite comfortable Gibbon further states that he has several times combined lipectomy with the operation for ventral hernia or for some intra-abdominal condition

My experience has been derived from 103 cases of umbilical hernia, in fifty-seven of which some excess fat was removed, and in forty-six a regular lipectomy operation was done There were eighty-nine cases with no mortality In thirteen cases with strangulation there were four deaths One other death occurred twenty-two days after operation, 22 pounds of fat were removed and the patient, a man weighing 325 pounds, did well till after the second week, when his kidneys began to fail and he gradually succumbed This was the only fatality in the lipectomies, and it is possible that the four deaths recorded might have been prevented had the patients been brought to the hospital sooner, but they were late cases and given the only chance The average amount of fat removed was from 5½ to 6 pounds Dr Gibbon's case shows the importance, as already mentioned, of careful diet and exercise following the removal of considerable fatty tissue, as otherwise the patient will be helped for only a short time

ABSTRACT OF DISCUSSION

Dr W Wayne Babcock, Philadelphia In regard to deposits of fat in the anterior abdominal wall, which are so frequent, it is important to remember that fat is somewhat like glandular tissue and stores up excessive fat within its cells When adipose tissue is excised it does not regenerate, and so, with removal of fat there is removed from the body in that particular zone the chances of fatty recurrence, and the completeness of the fatty removal indicates the degree of freedom from fat in that particular part of the patient's body thereafter In the abdominal wall, as Dr Lathrop has said, the best incision is a vertical one The older transverse type is not as well adapted because in bringing the margins together there are developed at the flanks horn-like projections which are unsightly and must be removed to secure a good contour The vertical incision may be so curved as to give the patient any shape which her particular type of body will permit After the removal of the skin and fat with extensive undercutting there comes also the reconstruction or the reenforcement of the deeper layers of the anterior abdominal wall The fat not only makes the patient unwieldy but by traction across the weakened anterior abdominal wall predisposes to hernia Most careful reenforcement is sometimes insufficient because the tissues have become stretched and the muscles attenuated In these cases other reenforcement is to be considered, and here we may consider a free transplant taken from the fascia lata or other fascia of the body, or what I have found more helpful, some alien substance Of the alien substances, silver in the form of filagree, has been suggested by Bartlett It is of great value but has the rather unfortunate defect that as time goes on the silver strands tend to fragment and possibly cause pain To overcome this, I have within the last two years laced the deep layers left weak after imbrication and suturing with a continuous lacing, as we lace a shoe with fine silver chain such as is employed by jewelers That having a caliber of about No 2 catgut has a tensile strength of 13 or 14 pounds The lacing can be done quickly with an ordinary needle Sometimes after the reduction of, for instance, a very large scrotal hernia we find that the patient dies because the abdominal cavity has not become adapted to the sudden increase in tension In one of my cases the tension resulted in cardiac failure the third day after the operation In two cases the patient developed glycosuria which was accompanied by somnolence and symptoms of impending diabetic coma Under large doses of alkalies both patients recovered but the possibility of producing pancreatic diabetes from undue tension must be considered

Dr H O Marcy Boston Horatio R. Storer of Boston did a great deal of excellent surgery The first case of umbilical hernia operated on in Boston with recovery was by him in the early sixties He was condemned by many and some said he should not be permitted to practice surgery From that day to this there have been great changes I wish to call your attention to a method of mine used many years ago in which instead of overlapping, I do what you might call flap splitting I have never seen the abdominal wall give way when I have reconstructed the abdominal parietes in this way Removal of fat is certainly a very interesting and profitable sequence to this Most of these patients do have pendulous abdomens I have gone one step farther, almost always one will find the omentum loaded with fat like leaf lard in the hog This I have taken away in order to have room in the abdominal cavity for the retention and function of the abdominal organs Having lost two patients from the greatly increased intra-abdominal pressure led me to study this all the more carefully, owing to the return of the contents of the hernial sac within the abdominal cavity The lateral division of the abdominal wall brings the coapted surfaces into a very wide union These are held in apposition by three layers of buried kangaroo tendon sutures

Dr W A Lathrop Hazleton Pa I want to emphasize what Dr Babcock said in reference to the importance of giving alkalies in cases where a large amount of fat is removed

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[6] Simmons Boston Med and Surg Jour March 9 1916
[7] Gibbon John H Personal communication to the author

THE ACTION OF VARIOUS "FEMALE" REMEDIES ON THE EXCISED UTERUS OF THE GUINEA-PIG *

J D PILCHER, M D
W R DELZELL
AND
G E BURMAN
OMAHA

Among the drugs listed as unimportant, inactive or useless in the reports of the Council on Pharmacy and Chemistry of the American Medical Association are a number that have been reputed to possess certain "tonic" or "sedative" actions on the uterus These drugs have never been studied pharmacologically, clinical observations on their usefulness are either entirely wanting or are inconclusive, and undoubtedly they would have fallen into disrepute long ago had they not been foisted on the medical profession in the form of a long list of proprietary preparations and on the public in the form of "patent" medicines

These drugs, and specimens of the claims that have been made for some of them in medical literature or in proprietary medicine advertising, are as follows

Black haw (*Viburnum prunifolium*) "sedative, antispasmodic, nervine and tonic of value in all congested, inflamed and irritable conditions of the uterus, ovaries and adnexa" "Will certainly relieve dysmenorrhea"

Blue cohosh (*Caulophyllum thalictroides*) " quite an efficient remedy to increase the force of uterine contractions of service in the treatment of spasmodic dysmenorrhea"

Cramp bark (*Viburnum opulus*) "A uterine tonic and sedative of surprising potency" " highly beneficial in the cramps of disordered menstruation, in the convulsions of pregnancy, in spasmodic contraction of the bladder and in cramps and spasms in general anti-abortive and alterative to the reproductive system"

Liferoot (*Senecio aureus*) "Regulates the functions of the uterus and allied organs, diminishing secretion when excessive or increasing it if scanty It also exerts a tonic effect on the uterine adnexa, and is especially indicated in amenorrhea, menorrhagia and chlorosis"

Jamaica dogwood (*Ichthyomethia piscipula, Piscidia piscipula* or *Piscidia erythrina*) "Through its action on the muscular system it can supplement viburnum and neutralize hydrastis in spasmodic dysmenorrhea"

Pulsatilla (*Pulsatilla pratensis* or *Anemone pulsatilla*) "a curative in uterine colic and a valuable remedy in inflammatory conditions of the uterus and ovaries a valuable tonic stimulant to the uterine fibers"

St Mary's thistle (*Silybum marianum, Mariana mariana, Carduus marianus*) " there is no other remedy in the materia medica of equal value in the treatment of chronic uterine hemorrhage and melena, inasmuch as it not only checks the immediate flow, but by continued use remedies the causes on which it depends, regulating and restoring the natural portal circulation, and, where amenorrhea depends on such irregularity, it tends to restore the normal flow"

Skullcap (*Scutellaria lateriflora*) " possesses tonic, nervine and antispasmodic properties in a high degree of inestimable value in the treatment of amenorrhea, dysmenorrhea, menorrhagia and kindred disorders"

Unicorn root (*Aletris farinosa*) "Exerts a specific influence upon the uterus, imparting tonicity and vigor to that organ"

Valerian (*Valeriana officinalis*) "is antispasmodic and a gentle stimulant to the nervous and circulatory systems is a valuable remedy in all forms of hysteria"

Wild yam (*Dioscorea villosa*) " a powerful antispasmodic, relieving uterine pains, cramps, etc"

In addition, several drugs were examined for which few specific claims have been made, or none at all, but which are ingredients of various more or less extravagantly advertised "patent" or proprietary medicines These are blessed thistle (*Cnicus benedictus* or *Carduus benedictus*), false unicorn (*Chamaelirium luteum* or *Helonias dioica*), lady's-slipper (*Cypripedium pubescens*), motherwort (*Leonurus cardiaca*), passion flower (*Passiflora incarnata*) and squaw vine (*Mitchella repens*) Mountain maple (*Acer spicatum*) was examined because it is said to be substituted for cramp bark (*Viburnum opulus*), which is believed not to have been on the American market for a number of years As a control chestnut bark (*Castanea dentata*), a drug that has no uterine action, was employed

This paper is a summary of a preliminary pharmacologic investigation of these drugs on the isolated uterus of the guinea-pig The guinea-pig was chosen, as the uterus of this animal is usually more active under experimental conditions than that of other animals

METHODS

A strip of the uterus was attached to a muscle lever and immersed in a bath of well oxygenated Tyrode's fluid[1] and the contractions recorded on smoked paper On immersion in the bath there is usually a latent period of from a quarter of an hour to an hour before the movements are initiated or become regular, frequently the strips do not become active After the registration of a satisfactory control tracing, the drugs were added to the bath in the proportion of 1 or 2 parts of the drug to 1,000 of the bath

The strip remained in the bath until there was evidence either of the activity or inactivity of the added drug Before a drug was deemed inactive it was left in contact with the strip of uterus for about fifteen minutes, as a rule, but occasionally for an hour or even longer, before renewing the bath and adding a fresh drug The active preparations, as a rule, caused a prompt change in the character of the tracing, usually they were allowed to act but a short time as it was found that prolonged action frequently destroyed the usefulness of the strips for other experiments A few experiments were always made to show that the action of a given drug was persistent The fluidextracts and the freshly prepared infusions of each drug were employed [2]

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* From the Pharmacological Laboratory of the University of Nebraska, College of Medicine

* This investigation was undertaken at the suggestion of the Therapeutic Research Committee of the American Medical Association, the Association assumed part of the expense of the investigation

* The detailed results and tracings will appear elsewhere

[1] Tyrode's fluid contains the salts of the blood in isotonic quantities

As the fluidextracts were alcoholic solutions, control experiments were made with equal amounts of alcohol, and these showed that the alcohol of the extract had no effect on the muscular strips in the concentrations used in these experiments, the fluidextracts, evaporated at about 45 C (113 F), manifested the same action as the fluidextracts themselves

The interpretation of the activity of a drug was judged by the change in the character of the muscular contraction Theoretically the action could be manifested in three ways, on the amplitude and rate of the excursion or on the muscular tone Practically it was found that, with but one exception, the size of the excursion was the feature affected, the action on the rate was always secondary to this In but a single instance was the tone primarily affected, secondarily, a number of drugs slightly decreased the muscular tone When the contractions were altered the tendency was always toward a reduction in the amplitude of the excursions, in no instance did a drug appreciably increase the excursions

RESULTS

The active drugs—The following drugs lessened the amplitude of the excursions or, in the stronger solutions, caused their complete cessation Unicorn root (*Aletris farinosa*), pulsatilla (*Pulsatilla pratensis*), Jamaica dogwood (*Ichthyomethia piscipula*), and figwort (*Scrophularia nodosa*), somewhat less active were valerian (*Valeriana officinalis*) and lady's-slipper (*Cypripedium pubescens*), the drugs possessing very weak actions were wild yam (*Dioscorea villosa*), life root (*Senecio aureus*) and skullcap (*Scutellaria lateriflora*) The infusions of figwort, Jamaica dogwood and lady's-slipper were active after the manner of the alcoholic preparations, but to a much lesser degree The infusion of motherwort possessed very insignificant depressant properties, although the fluidextract was inactive Blue cohosh (*Caulophyllum thalictroides*), even in the 1 2,000 solution, very promptly put the strips of uterus practically into a state of tonic contraction or tetanus The action was very persistent and the normal muscular state was not resumed after the strips were placed in fresh Tyrode's solution The infusion was quite inactive

The inactive drugs—The following were quite inactive or inert, both the fluidextract and the infusion black haw (*Viburnum prunifolium*) the bark of both root and stem, cramp bark (*Viburnum opulus*), squaw vine (*Mitchella repens*), chestnut bark (*Castanea dentata*), false unicorn (*Chamaelirium luteum*), passion flower (*Passiflora incarnata*), blessed thistle (*Cnicus benedictus*), St Mary's thistle (*Silybum marianum* or *Carduus marianus*) and motherwort (*Leonurus cardiaca*), sodium valerianate was also inactive in solutions up to 1 1,000 The strips were allowed to remain in the solutions of these drugs in concentration up to 1 500 for some time (many of them for an hour) without evidence that the drugs changed the character of the tracings in any way Control experiments showed that the strips were capable of being depressed or stimulated by these drugs so that there can be no question of their complete inactivity

COMMENT ON RESULTS

The question arises, How far can the results of this work on the excised strips of uterus muscle be compared to the action in the intact animal and in the human uterus? There are no experimental data on the point at present, but judging by analogy to other drugs, notably pituitary extract and ergot, it may with perfect safety be assumed that the action would be the same on the uterus in situ as on the excised strips of uterus, provided the drug reached the uterus in a similar concentration, this refers to the action on the muscle directly and on the nerve endings, any action on the local circulation can be dismissed, as no known drug acts specifically on the circulation of any organ The action on the human uterus would be the same, as a similar physiology implies a similar pharmacology It is improbable, however, that the concentrations of the drug used in this work could be attained in the body in whatever way they were administered From preliminary work on another form of smooth muscle (intestine) it seems highly probable that these drugs act in no sense specifically on the uterus but on smooth muscle in general, so that, even granted that they could be taken in sufficient dosage to exhibit their characteristic action on the uterus, it is more than probable that the action on the other forms of smooth muscle (intestine, blood vessels, etc) would overbalance any favorable effect there might be on the uterus

If the term "uterine tonic" implies a drug that increases the muscular tone of the uterus, with one possible exception (blue cohosh), the members of the group examined can be said to be absolutely void of any such action, for none of them increased the tone at all and many of them somewhat lessened the tone secondarily, although the majority were quite void of any action Without question, then, the entire list of "uterine tonics," whose supposed activity depends on the presence of the drugs here reported, can be emphatically stated to be inactive, those containing blue cohosh may be a possible exception to the statement but, in view of the difference between the concentration likely to be attained in the body and that used in the experiment, it is highly improbable that this drug could manifest the same action in the body that it did on the excised uterine tissue It is rather striking that some of the proprietary or "patent" nostrums are said to contain both cohosh and one or more of the depressant drugs, it is hardly worth while entering into a discussion of the result of mixing two or more preparations of this class with directly opposite physiologic actions

The work shows further that the domestic use of teas made from these drugs, for any supposed action on the uterus, is quite irrational, for water either extracts but a very small part of any of the active principles of the drugs or, in the majority of them, none at all The principles are probably of a resinous nature and therefore practically insoluble in water

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[2] All the preparations used were furnished by the American Medical Association Chemical Laboratory The crude drugs were identified and found true to name as follows by Prof Henry Kraemer blue cohosh (*Caulophyllum thalictroides*) false unicorn (*Chamaelirium luteum*) figwort (*Scrophularia nodosa* or *marylandica*) Jamaica dogwood (*Ichthyomethia piscipula*) lady s slipper (*Cypripedium pubescens*) life root (*Senecio aureus*) motherwort (*Leanurus cardiaca*) mountain maple (*Acer spicatum*) passion flower (*Passiflora incarnata*) pulsatilla (*Pulsatilla pratensis*) skullcap (*Scutellaria lateriflora*) squaw vine (*Mitchella repens*), unicorn root (*Aletris farinosa*) valerian (*Valeriana officinalis*) by Prof E. N Gathercoal black haw (*Viburnum prunifolium*) blessed thistle (*Cnicus benedictus*), and cramp bark (*Viburnum opulus*) A fluidextract was made by L E Warren of the American Medical Association Chemical Laboratory from each one of the following named authentic drugs black haw (*Viburnum prunifolium*) bark of root black haw bark of stem cramp bark (*Viburnum opulus*), and mountain maple (*Acer spicatum*) all other fluidextracts were made by different firms and their identity was not established, but as the actions of two preparations of each drug was about the same their identity is probably authentic.

CONCLUSION

Not only are the drugs in this list unimportant, as they have been styled, they are also practically worthless Their use is harmful as well as futile, since it tends to perpetuate therapeutic fallacies

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OPERATIVE TREATMENT FOR THREATENED GANGRENE OF THE FOOT

WITH SPECIAL REFERENCE TO REVERSAL OF THE CIRCULATION [*]

J SHELTON HORSLEY, M D
RICHMOND, VA

Threatened or slow gangrene of the foot follows a diminution of the caliber of the blood vessels supplying the foot This results from a disease which may be clearly systemic or which may manifest itself chiefly in the blood vessels of the lower extremities Sudden occlusions, as by emboli, with consequent rapid gangrene, do not come under the title of this paper

The diseases of the vessels which cause slow or threatened gangrene of the foot may be divided into four groups

1 *Arteriosclerosis*—This condition is caused by toxic products which may come from deranged metabolism, as in nephritis, from infectious diseases, as syphilis, or from general wear and tear, as in old age It is found chiefly in the arteries There is excessive thickening of the media or intima or of both

2 *Intermittent Claudication* —This disease was described by Charcot and occurs in the legs It consists of a vasoconstrictor spasm in arteries that are already affected with arteriosclerosis The spasm appears on exertion, when the tissues require an increase of blood, and causes painful cramps During the cramps the legs are cold and pale or mottled After rest the cramps may disappear, but pulsation of the tibial arteries is feeble or lacking

3 *Raynaud's Disease*—In this disease there is no organic pathologic condition, but the constriction of vessels is due to intense spasm of the small arterioles or venules just before they become capillaries It may be of three types, a spasm of the arterioles alone, causing a bluish color, of the venules alone, making the affected parts red, or of both the arterioles and venules, causing a blanching Any of these types may result in gangrene

4 *Thrombo-Angiitis Obliterans*—Leo Buerger of New York has made a careful study of this disease, which was formerly rather vaguely classified and was referred to clinically under various terms The German writers considered it an obliterating endarteritis Buerger has shown that thrombo-angiitis obliterans has many distinctive characteristics and that the occlusion of the vessels is not caused by a thickening of the intima, but by a thrombosis[1] This disease occurs chiefly in the blood vessels of the lower extremity, though occasionally the upper extremity is affected It begins, not in the arterioles or in the smallest arteries, but in vessels of medium size, and then ascends In the foot it is usual, according to Buerger, for the dorsalis pedis and plantar arteries to be involved first, and later the disease ascends to the tibials and sometimes to the popliteal artery The deep veins are affected in about 40 per cent of the cases Occasionally a segment of apparently healthy blood vessel is found between diseased portions of the same vessel Buerger has demonstrated that in the first stage of the disease the affected vessel shows signs of inflammatory change, and he seems to have proved quite clearly that thrombo-angiitis obliterans is due to some microbe or to a toxic material which, however, has not yet been isolated

In the first stage there is a round cell infiltration of the media and adventitia of the vessel and usually of the tissue around the vessel Soon after this, and sometimes almost accompanying it, a red clot forms in the vessel and practically always obliterates it Then small foci appear in the clot, which Buerger refers to as "miliary abscesses" They are collections of pus cells and leukocytes that form in the thrombus, usually around its periphery The leukocytes apparently come in from the media Angioblasts then grow into the clot and the ordinary process of organization and canalization occurs in the thrombus as elsewhere in the body except in these small foci Here the angioblasts seem to lose their power of producing blood vessels and terminate around the edge of these pus foci as endothelial cells or penetrate the foci and either fray out or produce giant cells A little later the giant cells arrange themselves around the periphery of the focus, the leukocytes disintegrate, and the resemblance to a tubercle is marked After this the degenerated products are absorbed and the focus becomes connective tissue Then all traces of acute inflammatory process disappear The leukocytes and wandering cells in the media and adventitia and perivascular tissue disappear and the obliterated or canalized vessel is left as the final product

This is the life history of the disease as traced by Buerger It begins with every evidence of acute inflammatory reaction, is followed by an apparently specific process in the tubercle-like formation, and ends in organization and canalization of the thrombus The disease is sometimes extensive and often ends abruptly in a clot which projects into the lumen of a vessel that appears to be normal It may progress in stages, so that, while the vessels in the foot may show the old type of organized and canalized thrombus, farther up in the leg the tubercle stage may be seen, and still farther in the upper tibials the acute inflammatory reaction with a red clot, pus foci, and infiltration of the blood vessel wall and perivascular tissue may appear

Thrombo-angiitis obliterans occurs between the ages of 20 and 35 and rarely after 40 It is found chiefly in males Most of the patients are Russian Jews, or descendants of Russian Jews, or Jews from the country around Poland, the eastern part of Austria-Hungary or eastern Germany Koga, however, has found this disease among the Japanese, and the patient whose case is reported in this paper had no Jewish ancestry and was born and raised in Virginia The symptoms depend largely on the extent of the disease Buerger has found that the superficial veins are often involved and may give no symptoms in themselves There may be vasomotor symptoms such as flushing of the leg or foot when it hangs down, followed by blanching when it is elevated Ordinarily the foot is cold and of a dark bluish or purplish color Often pain is the calf of the leg is severe and is more marked after exertion These symptoms may be attributed partly to the mechanical occlusion of the vessels which produces ischemia, and partly to the fact that nerves are sometimes pressed on or irritated by the scar tissue which may result from the inflammatory reaction in the perivascular tissues

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[*] Read before the Section on Surgery, General and Abdominal, at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

[1] Buerger Am Jour Med Sc, October, 1908, p 567, ibid, November, 1914, p 582, Jour Med Research, November, 1914, p 181, Arch Diagnosis, February, 1915, p 210, Surg, Gynec and Obst October, 1915

The treatment of threatened gangrene should embrace such constitutional measures as may be indicated When the arterial disease is due to diabetes, the Allen treatment should be instituted If from other causes, such as syphilis, appropriate remedies should be given Locally, conservative measures as hot applications or hot air, particularly in cases of diabetic gangrene, sometimes accomplish much De Witt Stetten[2] reports excellent results in a series of cases of diabetic gangrene which he treated along these lines, never doing a radical amputation, but merely cutting away the gangrenous tissues at the line of demarcation

For the treatment of gangrene due to thromboangiitis obliterans, a number of remedies have been suggested, some of them quite different Thus, Ochsner[3] believes that his patients with this disease ate too much salted meat, while Koga[4] recommends hypodermoclysis with saline or Ringer's solution as a remedy Willy Meyer[5] has obtained excellent results by the latter treatment, and thinks that the benefit is due to the fact that the solution in some way alters the quality of the blood He has used it in more than thirty patients, and gives twenty-four injections in each case Five hundred c c of Ringer's solution are given each time Four regions of the body that take up the solution most readily are chosen and the solution is injected in these regions in rotation The injections are given every day or every second or third day, according to the amount of discomfort that is caused

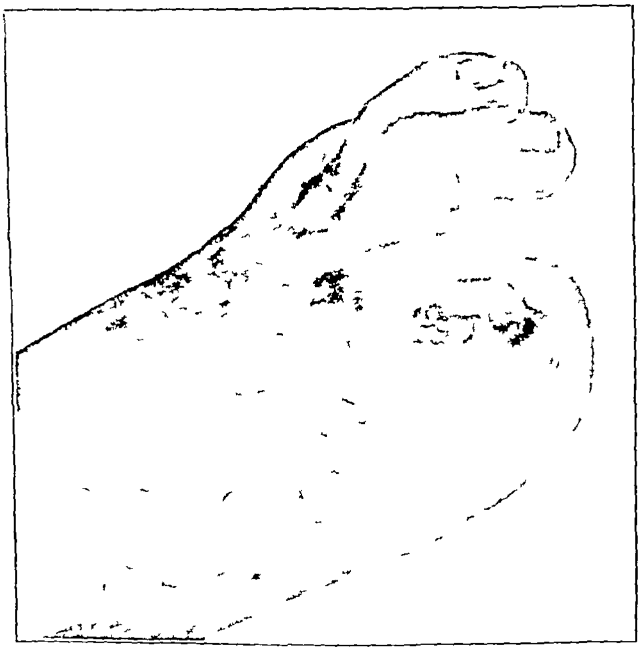
Fig 1.—Foot before operation The discoloration started at the stump of the great toe

Dr L L McArthur[6] reports six cases of thromboangiitis obliterans which he has recently treated with hypodermoclysis of Locke's or Ringer's solution with gratifying results Dr A J Ochsner,[7] in discussing this group of cases, has found that patients suffering from this disease are promptly relieved from pain after an injection of Ringer's solution

Since in all of these diseases the arteries or arterioles are chiefly affected, it has been proposed, largely as a result of the experiments of Carrel and Guthrie,[8] that the veins be utilized to carry the nutritive arterial blood to the tissues To accomplish this, the arterial current has been switched into a vein by means either of an end-to-end or a lateral anastomosis between the femoral artery and the femoral vein This operation has been performed by a number of excellent surgeons, Wieting having probably done more than any one else to bring it into prominence

In order to determine whether arterial blood, when switched into the veins, really reached the tissues for which it was intended, I undertook a series of experiments on dogs about three years ago The femoral artery and femoral vein were divided about 2 inches below Poupart's ligament, and the central end of the artery was united to the distal end of the vein end to end by means of a double mattress suture, the technic of which has been described elsewhere[9] The animals were killed at periods varying from half an hour to forty-six days after operation A cinnabar mass was injected into the circulation just above the anastomosis A roentgenogram was taken and then a bismuth mass was injected into the abdominal aorta, after which another roentgenogram was taken The specimens were dissected by the late Dr R H Whitehead, professor of anatomy at the University of Virginia, who found that the dissections corresponded quite closely to the Roentgen-ray findings The report[10] of these experiments and the report[11] of an experiment on another animal which was similarly injected and killed after sixty-nine days have been published

All of these experiments show that in no instance did the injection material in the reversed circulation reach the foot, in most cases it went only a short distance below the knee In all the animals that lived longer than a few days, the injected mass was quickly transferred by large anastomosing veins to the iliac veins and through them to the vena cava The arterial blood must have followed the same course as the injected fluid, which, in the reversed circulation, rarely went lower than midway between the knee and the ankle De Witt Stetten[12] arrives at the same conclusion, namely, that arterial blood in a reversed circulation goes but a short distance below the point of anastomosis and never reaches the tissue which most needs the nutrition His deductions are from experiments on limbs that were amputated because of slow gangrene

After the arterial blood is switched into the veins, the large valves in the veins are quickly broken down, and the arterial blood in the reversed large vein then rushes into the smaller veins The smaller valves in the small veins require relatively more force to overcome them than the larger valves in the large vein because of the relation of cubical contents to square surface, and soon the reversed arterial blood reaches a point at which the valves in the small veins check it permanently These valves probably thicken, and the collateral circulation increases With the increase of the collateral circulation the pressure on the obstructing valves is reduced and, instead of the constant pounding of the heart tending to break these valves, it seems to do just the reverse This is clearly shown by an experiment in which the dog lived sixty-nine days and in which the arterial blood went but little farther down the leg than it did in a dog that was injected half an hour after the circulation was reversed Valves that are not overcome within the first few minutes have less and less pressure on them until the collateral circulation develops to the maximum

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[2] Stetten De Witt The Conservative Treatment of Diabetic Gangrene of the Lower Extremity The Journal A M A April 12, 1913 p 1126

[3] Ochsner Surg Gynec. and Obst October 1915 p 536

[4] Koga Deutsch Ztschr f Chir cxxi 371

[5] Meyer Willy Ann Surg March, 1916 p 292

[6] McArthur L L Surg Gynec. and Obst May 1916 p 625

[7] Ochsner A J Surg, Gynec and Obst May 1916 p 626

[8] Carrel and Guthrie Ann Surg February, 1906 p 203

[9] Horsley J Shelton Surgery of the Blood Vessels, St. Louis C V Mosby Company 1915 p 46

[10] Horsley J S and Whitehead R H A Study of Reversal of the Circulation in the Lower Extremity The Journal A M A March 13 1915 p 873

[11] Horsley J S Ann Surg March 1916 p 277

[12] Stetten De Witt Surg Gynec and Obst April 1915, p 381

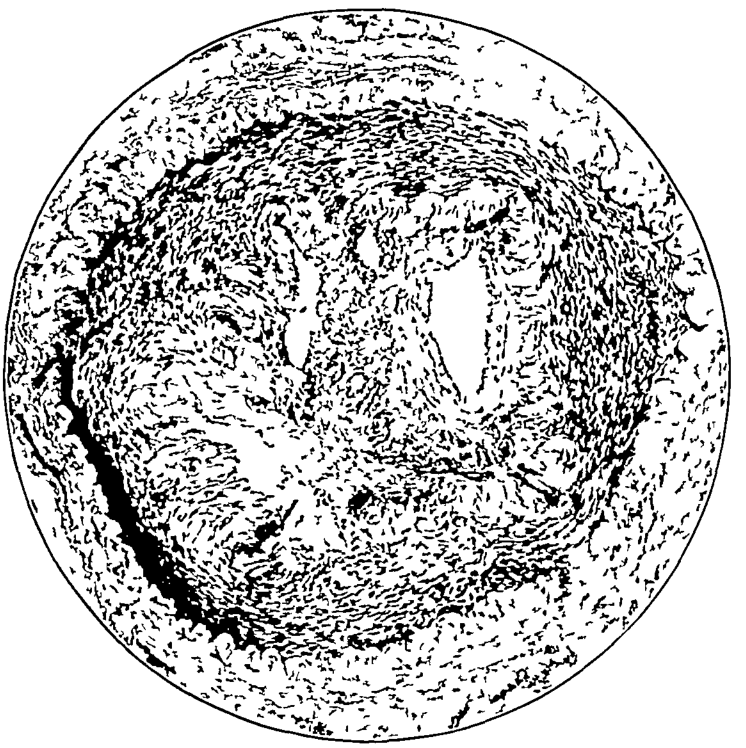

Fig 2 —Photomicrograph showing old lesion of thrombo angiitis obliterans in the posterior tibial artery From a case of Dr Leo Buerger, who kindly lent me the photomicrograph

The benefit obtained by reversal of circulation in threatened gangrene is clearly not due to the fact that the arterial blood in the reversed vein reaches the affected tissue, but it is because the obstruction in the venous return causes blood delivered from the arteries to linger in the tissues longer than it otherwise would If we suppose, for instance, that it takes a definite number of seconds for tissues to take up a proper amount of nourishment from the arterial blood and that the carrying power of the arteries has been reduced to one fifth of their normal capacity, while the veins have been but slightly affected, it can easily be seen that the small amount of arterial blood that does reach the tissues is taken away by the comparatively unimpaired venous circulation more quickly than normally, before it can give up proper nutriment to the tissues On this account, then, the arterial blood, instead of remaining in the tissues the physiologic time, seems to be drained away too quickly, whereas the obstruction in the venous return produced by an arteriovenous anastomosis would dam back the arterial blood, and cause it to remain in the tissues a longer time and so give up more of its nutrition than it could if the venous return were unobstructed

Ligation of the femoral vein, as done by von Oppel, Coenen, Lilienthal and others, will produce this obstruction to the venous return more accurately and with much less danger than reversal of the circulation, and is an operation that can be done in a few minutes under local anesthesia It is indicated in threatened or early dry gangrene when the veins are not too greatly involved

In two cases reported below, one gangrene from thrombo-angiitis obliterans and the other from arteriosclerosis, this operation of ligating the femoral vein was done In the first case it was done on one femoral vein, in the second case on both

REPORT OF CASES

Case 1 —*History* —M, man, aged 26, single, is a carriage painter, though he has not worked at this trade for five years He is an American, born in Virginia There is no history of any Jewish ancestry His father, aged 54, is in good health There is no tuberculosis or cancer in the family except that his grandmother died of cancer of the neck His mother died following childbirth The patient had three brothers, all of whom are dead, one died from typhoid, one was drowned and one died from an unknown cause

Except for the present trouble, the patient has never been seriously sick, though he had mumps and chickenpox when young and a slight attack of malaria about seven years ago He denies ever having had any venereal disease Two Wassermanns have been made, both of which were negative

The first symptoms began about September, 1909 Pus formed under the nails of the second and third toe of the right foot, accompanied by considerable pain The toes and adjoining portion of the foot were very red and swollen and became gangrenous The affected toes were removed by Dr Robert C Bryan Healing was sluggish and was not complete for nearly two years, but there has been no trouble with the right foot since About September, 1913, the patient began suffering with the great toe and second toe of the left foot These toes became red and painful, and amputation was done in May, 1914 Healing was slow, but was complete in a few months For a year after the amputation he was

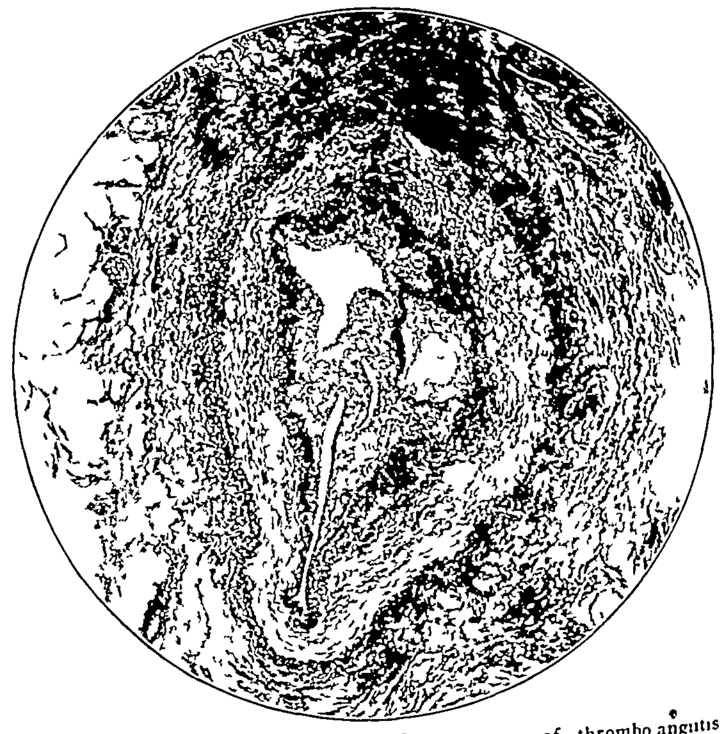

Fig 3 —Another photomicrograph from a case of thrombo angiitis obliterans of Dr Buerger

free from pain About July, 1915, pain returned in the left foot, followed by dark redness on the inner side of the foot near the stump of the amputated great toe The pain was intense and required large doses of morphin for its relief Sept 9 1915 the left femoral vein was ligated with catgut under novocain in the upper part of Hunter's canal A few minutes after ligation the left foot, which had been cold, became warm and congested The condition of the foot seemed to improve for a few days, though the pain continued Two weeks after the operation however, gangrene began to spread, and dark mottled spots appeared over the dorsum of the foot Amputation of the left leg was then done, Oct 2 1915 under ether, at about the junction of the upper and middle third of the leg No tourniquet was used the vessels being ligated as exposed The wound was closed with silkworm-gut sutures lightly tied Healing was by first intention The patient left the hospital in good condition Nov 6 1915 There has been no pain or trouble of any kind in the stump of the leg since the operation, and there is at present seven months after operation, no tenderness on pressure on the stump The patient has ordered an artificial leg He has some pain in the hands and wrists which may be due to the use of crutches

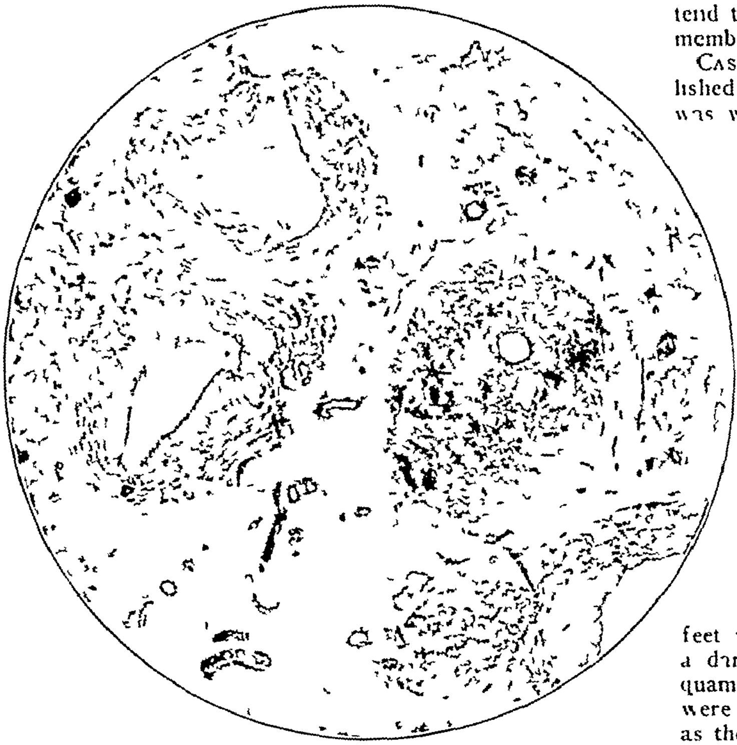

Fig 4—Photomicrograph in Case 1 × 20 Section stained with hematoxylin and eosin from posterior tibial vessels Note the artery to the right and the accompanying veins The veins are but slightly affected The thrombus in the artery has been organized and is canalized by two vessels

Laboratory Examination—Portions of the posterior tibial and of the anterior tibial vessels were dissected from the amputated leg and serial sections were made in the laboratory of Dr H T Marshall professor of pathology in the University of Virginia Department of Medicine The sections were variously stained with hematoxylin and eosin orcein or van Gieson's stain The findings show according to Dr Marshall who has devoted much time to a study of these sections evidence of old thrombus deposit Dr Leo Buerger who kindly examined the sections reports that they undoubtedly show lesions of an old thrombo-angiitis obliterans The inner elastic membrane is distinctly seen The sections stained with orcein an elastic tissue stain show plainly that there is no excess of elastic tissue within the inner elastic membrane which does occur in the endarteritis of arteriosclerosis Organization and canalization of the thrombus is seen in the sections Two fairly large vessels canalize the old thrombus, and one of them in a section stained with orcein (Fig 7) can be seen to approach the internal elastic membrane, a feature which according to Buerger is distinctive, as these vessels tend to divide and may actually penetrate the internal elastic membrane and enter the media

Case 2—A preliminary report[13] on this case has been published At the time the article which contained the report was written the patient was living though when the proof sheet was received he had died and a note was made to that effect

History—Man aged 70 white had had a positive Wassermann reaction In December 1913, he began losing strength and weight, and his physician Dr George Ross found both sugar and albumin in the urine in considerable quantities In the fall of 1914 a dark line appeared on the heel of the right foot, and a corn on the little toe of the same foot became painful and red and a little later showed marked discoloration A scratch on the right leg, about 2 inches above the external malleolus, was the beginning of an ulcer which gradually extended until it became an inch in diameter On admission to the hospital April 9 1915 this ulcer, evidently the result of a small area of superficial gangrene, had attained its largest size The little toe of the right foot was completely gangrenous with a line of demarcation around its base There was an area of dry gangrene covering the right heel 2½ inches in diameter Both feet were swollen and painful On the left heel there was a dark crack 1¼ inches long The skin was red and desquamating over the dorsum of the left foot though the toes were pale The left foot was undergoing the same changes as the right foot underwent before gangrene set in

Operation and Results—On the day of admission, April 9, 1915 the femoral veins in both thighs were ligated with catgut under local anesthesia in the upper part of Hunter's canal The superficial veins in both legs became filled and

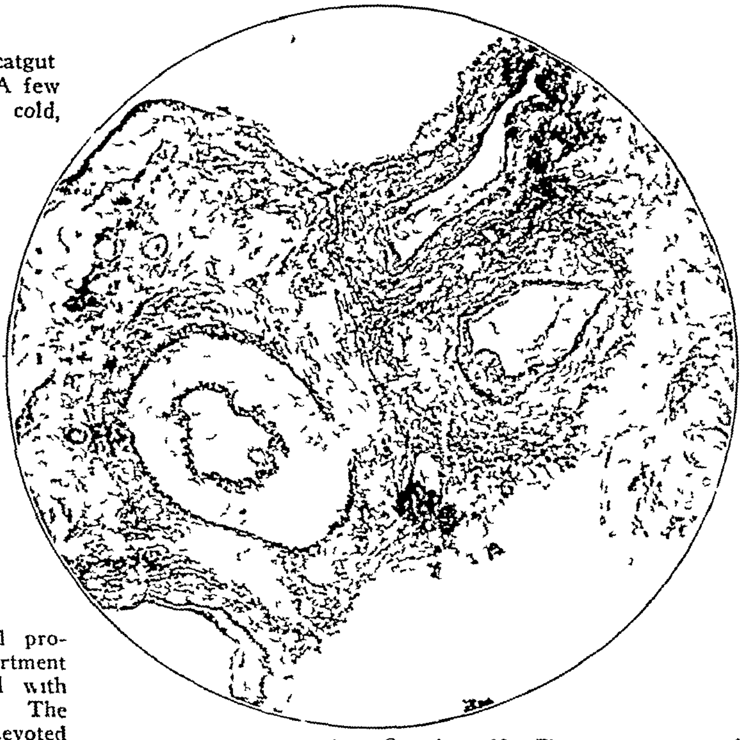

Fig 5—Photomicrograph in Case 1 × 20 This section is stained with orcein which brings out the elastic tissue and shows the old clot in the artery which is organized and canalized by two vessels Posterior tibial vessels Note the distinct absence of elastic tissue within the organized thrombus

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prominent immediately after the ligation The gangrenous right toe was removed The day following the operation there was less pain, the edema in the left foot had entirely disappeared, and that in the right foot was almost gone This was unusual, for ligation of the veins is supposed to predispose to edema if it does not cause it Probably the better balanced circulation permitted the arterial blood to take up the fluid in the tissues Two weeks after operation the patient was discharged from the hospital At that time there was no swelling in either foot, and the pain was practically gone The wound at the base of the little toe of the right foot had a few granulations, and the gangrenous tissue in the right heel was beginning to separate The ulcer above the external malleolus was healing, and the patient expressed himself as feeling much better

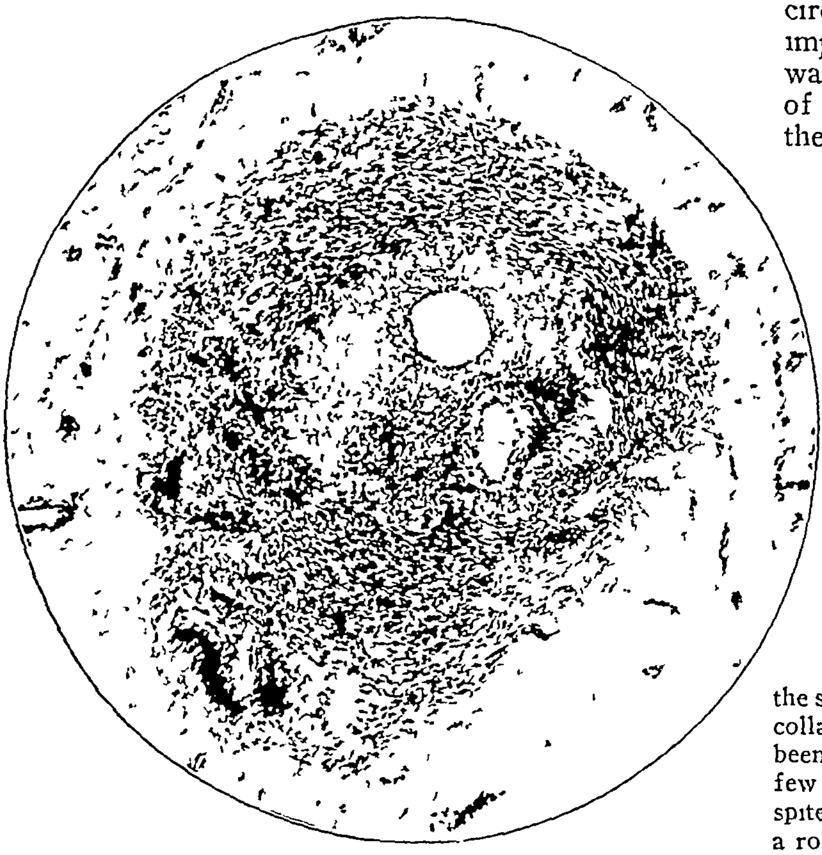

Fig 6—Photomicrograph in Case 1, from section stained with hematoxylin, × 45 The inner elastic membrane is shown and within this is the old organized clot, canalized by two vessels From posterior tibial artery

May 3, 1915, I saw the patient at his residence The swelling had returned in both feet, though it was not so bad as before the operation Pain had also increased, and the small discolored crack in the left heel was unchanged The ulcer above the right malleolus had entirely healed and was covered with smooth skin Later the stump of the little toe on the right foot became infected at the patient's home where dressings could not be well done, and pus burrowed into the foot The leg was amputated under local anesthesia, May 15, 1915 No tourniquet was used Though the healing was slow, there was no gangrene The diabetes and albuminuria continued About the middle of June, gangrene of the left foot spread rapidly from the little toe The patient died, July 10, 1915 No further operation was done as, with sugar and albumin abundant in his urine, further operation was obviously useless The patient was syphilitic, diabetic, nephritic and 70 years old We had no right to expect much in a case of this kind, but the patient was satisfied that he had obtained benefit, particularly in the decrease of pain and in the healing of the ulcer above the external malleolus

CONCLUSIONS

While in neither of these cases were the clinical results after ligation of the femoral vein permanently successful, there was some temporary improvement in each case, slight though it was in the first The results, however, compare very well with the favorable results usually reported from operations for reversal of the circulation by arteriovenous anastomosis in which the improvement consists in a better color and more warmth in the foot with lessening of pain Results of this kind can be equally well obtained by ligating the femoral vein In very early cases of slow gangrene in which the veins are unaffected or but slightly involved, it is possible that this simple operation may give relief for a long time or, in a few instances, may be permanently beneficial

ABSTRACT OF DISCUSSION

Dr De Witt Stetten, New York I wish Dr Horsley would abandon the term "reversal of the circulation" I know that we have identical opinions on arteriovenous anastomosis, which we have reached simultaneously but by different routes My injection experiments on limbs amputated for gangrene of various sorts where arteriovenous anastomosis would have been indicated show conclusively that the arterial circulation to the periphery, even in very advanced arterial disease, is better and easier than the retrograde venous circulation, because of the obstruction of the valves and the short-circuiting of the blood through anastomoses of venous collaterals But, the operation is dangerous and the results have been most unsatisfactory in the vast majority of cases The few so-called successful results have been obtained more in spite of than because of the operation, as various factors play a role in the improvement, as improvement has occurred after definite closure and failure has followed perfect patency of the arteriovenous fistula Even if the anastomosis functionates, which it rarely does, there can be no circulatory improvement, but rather the reverse Even if the operation were definitely proved useful, the possible indications would be restricted to almost nil Dr Horsley's animal experiments have substantiated my conclusions Regarding von Oppel's

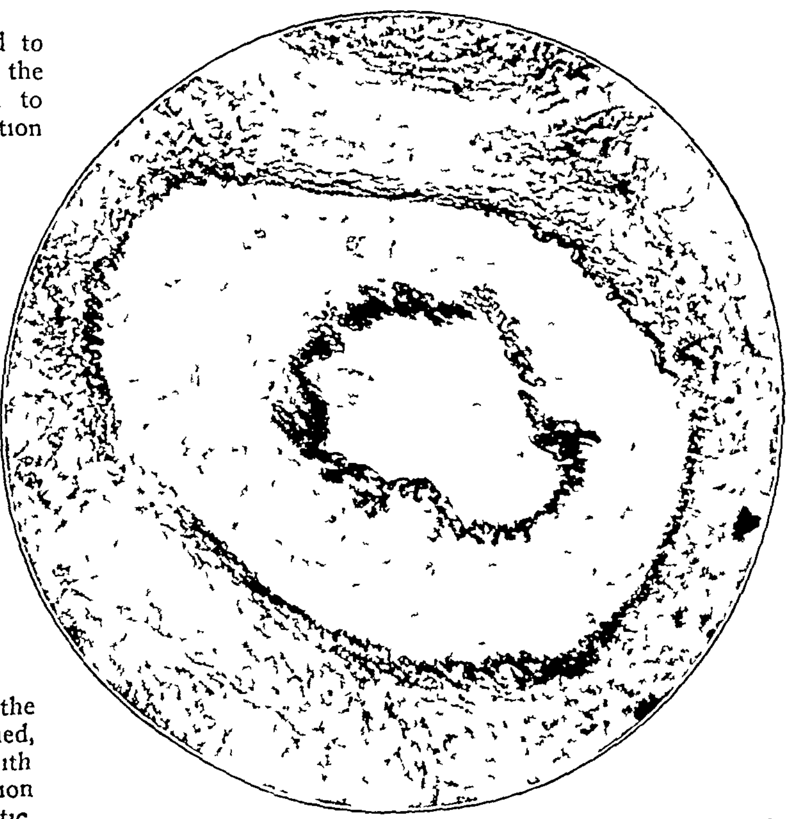

Fig 7—Photomicrograph in Case 1, from section stained with orcein to bring out the elastic tissue × 45 From posterior tibial artery

ligation of the femoral vein, I did feel with Dr Horsley that whatever success followed arteriovenous anastomosis was due to the same circulatory conditions that followed ligation, yet, while I do not wish to be understood as doubting the utility of ligation I must confess that if it helps, I cannot quite understand the reason I still favor ultraconservatism in the treatment of all types of gangrene—avoiding any operation as long as possible Besides systemic treatment of the patient and surgical treatment of the wound, baking, warm baths, alternating hot and cold baths, posture, rest, moist dressings, etc, have given the best results which, while not as striking nor as prompt in the thrombo-angiitis obliterans and senile varieties as in the diabetic cases are nevertheless obtained with patience, and many limbs and lives are saved The treatment by hypodermoclyses, I believe improves the patient's general tone and thus aids in the recovery Concerning the microbic theory of thrombo-angiitis obliterans, I cannot conceive of an infectious disease limited to one sex and practically to one race Among the many patients I have treated, I have never seen a female, and except for one Russian Christian, all the rest have been Russian Polish or Galician Jews I am convinced that the causative factors of this disease are of a nature similar to those of hemophilia i e, that some abnormality of the blood or instability of the vascular system has developed in certain racial groups that this is transmitted to the males and becomes evident between the ages of 20 and 35 Although, as yet, definite proof of the hereditary nature of the disease is lacking certain observations by Dr Garbat tend to confirm these impressions

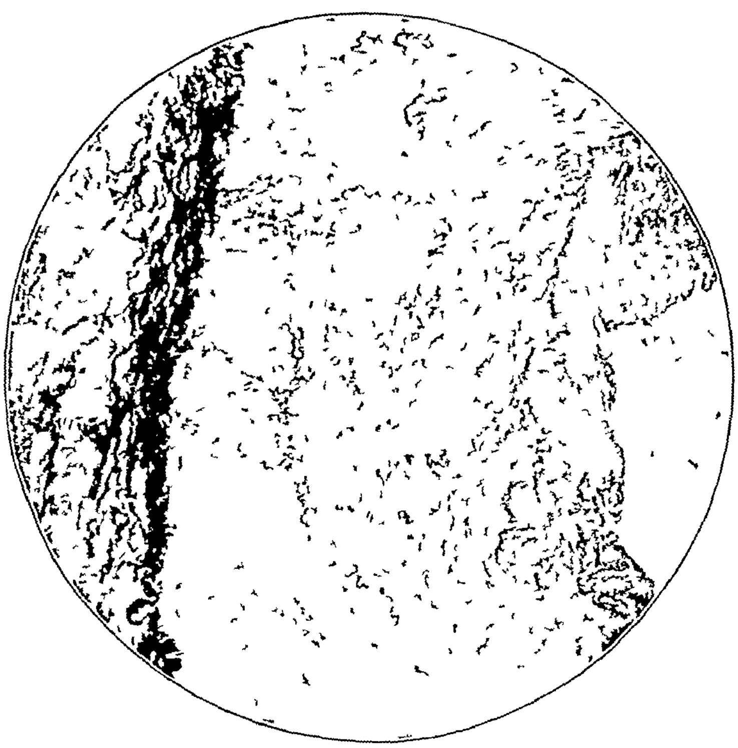

Fig 8—Higher power (X 150) of Figure 7 showing inner and outer elastic membrane

Dr Charles Goodman New York In reply to the arguments against the advisability of performing an arteriovenous anastomosis for presenile gangrene, I should like to call attention to the many instances in surgery in which an operation is condemned theoretically on anatomic and physiologic grounds, and yet yields a surprising practical benefit Take, for example, gastro-enterostomy The jejunum was never meant to have any direct communication with the stomach, yet with the modern perfected technic this operation has attained a recognized place in surgery Intravenous saline infusion after hemorrhage and shock is another instance We cannot forget that there is such a thing as the adaptability of living tissue to changed conditions without which we could not practice surgery So, in arteriovenous anastomosis for the relief of obstructed circulation of the extremities it is not definitely known how much of the circulation reaches the periphery or how the reversal of the circulation takes place, but we have clinical evidence that the symptoms were relieved shortly after the operation for an indefinite period All writers agree that these cases eventually come to a high amputation We have had clinical evidences that trophic ulcers which had resisted all other forms of treatment take on appearances of repair and heal An extremity previously cold and cadaverous has become warm and pink pulsation could be felt distinctly in the veins peripheral to the anastomosis and superficial veins have become distended Pain has been relieved and the parts threatened or the actual seat of gangrene returned to normal We cannot disprove the practicability of the operation as a palliative measure under proper indications A study of the disease from an ethnological and historical point of view led me to believe that endarteritis obliterans and thrombo-angiitis are late manifestations of a previous typhus infection Serologic tests have shown a complete agglutination reaction in at least three of twenty-one specimens of blood We had a three plus complement fixation reaction in one patient and a four plus complement in two One of these with the most pronounced reaction had active lesions

Dr Nathaniel Ginsburg Philadelphia In considering this form of peripheral vascular disturbance, it is most important to distinguish sharply between the various types of circulatory failure Dr Horsley has contributed some very important observations to our knowledge concerning the possibility of so-called reversal of the circulation I have long believed that this operation is founded on a faulty anatomic and physiologic basis and that laboratory experimentation with animals could only be applied to the human being so far as the technical features of the anastomosis are concerned With reference to diabetic gangrene, and peripheral gangrene due to arteriosclerotic changes it is my belief that surgery in the first type of cases should be sparing, and as conservative as possible In this class of cases I pay particular attention to the acidosis present, making every effort to reduce the ketonuria by means of the Allen treatment and other measures which have for their purpose the rapid and effective reduction in the sugar content in the blood With regard to senile gangrene, no measure can overcome the pathology present in the peripheral vessels and a circulatory failure cannot be reestablished by any means at our disposal Peripheral gangrene, known as *thrombo-angiitis obliterans*, is a distinct clinical entity about whose syndrome we have little knowledge so far as the etiologic factors are concerned, It is important to distinguish this class of cases of peripheral blood vessel disturbance and to confine to this class those young or middle aged adult males of Russian, Galician, or Lithuanian birth of the Hebrew race, in whom this disease is always found While it is true that Ochsner has observed this condition in Swedes, and Kogo and Mayesima of Japan have studied and reported the occurrence of this condition in the Japanese, in this country practically all the cases observed have been in the type above stated and exclusively in the male sex I have been impressed by the fact that some vague toxic factor is the underlying cause of this condition These patients, as a rule are inveterate cigaret smokers and have been exposed, through occupation and dire necessity, to climatic conditions which plus constant static position have predisposed to peripheral circulatory failure The large majority of these cases includes men engaged in baking barbering, street venders and machine workers, where there is constant standing on the feet over long periods of time Von Oppel has performed femoral vein ligation in these cases, believing that the peripheral venous stasis thereby induced in the affected limbs from the physiologic point of view has the same relative surgical value as arteriovenous anastomosis Kogo and Mayesima found that these patients have an increased viscosity of the blood, and they have made effectual attempts by employing sodium citrate solution for intravenous injection to reduce the increased viscosity They do not report in their list of fifteen cases any instance of femoral vein ligation Garbat of New York recently stated that multiple injections of 2 per cent sodium citrate solution into the veins did not have a deleterious effect I have employed femoral vein ligation in four cases with coincident injections of Ringer's solution, and 2 per cent solution of sodium citrate There is every reason to believe that in three of these cases a very marked benefit has resulted, and in one instance the patient has begged for the same procedure in the other limb I hope to report these and other cases with more detail with reference to the end results attained, and the real value attaching to femoral vein ligation in cases of this particular type We have tried foot baths, heat, Bier's hyperemia, electrotherapy, heliotherapy, and the employment of many drugs, all of which have been of no value so far as the course of the disease is concerned Finally it must be borne in mind that the disease we are treating is one in which there is definite pathologic change in the peripheral blood vessels evidenced by microscopic study of the sections removed, the disease being seen in its late stages and therefore often beyond any other palliative means of treatment

Dr. Carl Beck, Chicago Dr Horsley mentioned that Dr Carrel depended on the change of color when judging the results of his anastomosis, declaring that the brighter color of the vein indicated that arterial blood was passing through it Dr Carrel depended, as I can state from actual experience with him, on the pulsation of the vein This was clearly proved to me to be the case in one instance, which I have not published myself, but which is included in the publication of Dr Halsted of Chicago, to whom I gave the details of the case when he published a series of anastomoses of blood vessels I have had several cases in which I reversed the circulation by anastomosis, but this particular one was of the greatest interest The patient was a man with gangrene of both feet, progressive, and without tendency to demarcation After some weeks of observation, we decided to make an arteriovenous anastomosis, which we did without any mishap Demarcation took place at once, not only on the limb which was operated on but also on the other limb The dead portions of the feet, clear up to the tarsocrural joint, dropped off, and when the stumps granulated, we decided to amputate the badly looking stumps and make healthy and functionally good stumps by reamputation

That the artery drained into the vein was proved to me by the spurting of every vein on the side where the anastomosis had been performed Two interns operated at the same time and I watched the operation On one side spurting of veins, on the other none at all That shows that anastomosis will reverse the circulation Whether it will be beneficial for gangrene is another question

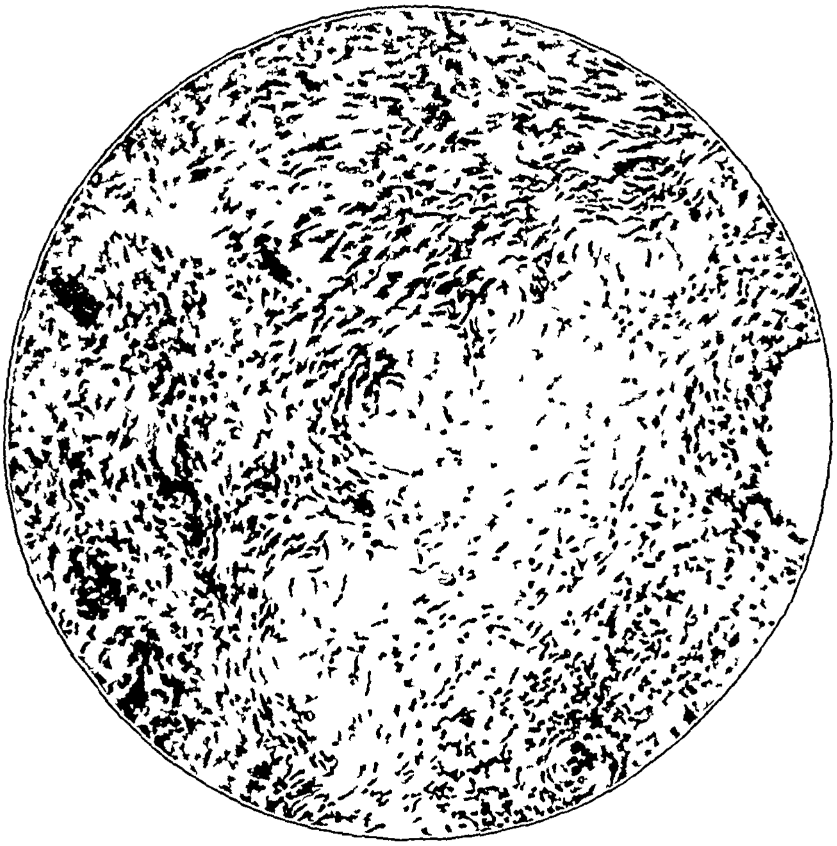

Fig 9 —Higher power (× 150) of Figure 6 On the right is part of the lumen of one of the canalizing vessels Through the center of the photograph runs the inner elastic membrane To the left is the media, which is still well vascularized

Dr George Morris Dorrance, Philadelphia Since the time that Dr Carrel introduced his method of reversing the circulation, none of our experimental or clinical work has been satisfactory We studied the reversal in the dog by injecting thorium above the anastomosis with approximately the same pressure as the dog's heart and found by Roentgen ray that practically all of it returned from the first or second branch of the vein and we did not obtain a complete reversal In man, you have the added difficulty of an arteriosclerotic artery At best there will be a large number of closures of the anastomoses From a careful analysis of both the clinical and laboratory work, I find that what little success is obtained is due to ligation of the vein Experiments made on the cadaver, though faulty, have led to the same conclusions Of course, it is here necessary to first wash out the vessels Working along these lines, I cannot see what is the use of fooling with these cases and dragging them along Why not amputate early, providing the ligation of the vein does not give you results? Get these people back to work again

Dr Ernest Laplace, Philadelphia Dr Dorrance has given us the keynote to the practical side of the question This gangrene is not a local trouble It is a local manifestation the real nature of which is unknown to us and is a puzzle in surgical pathology today It affects certain people of the Jewish race and the male sex only, so far as we know In the vast majority of cases I believe the specific treatment will do some good with or without knowing exactly the reason it does so The disease is more manifest in the toe because the circulation is weakest there After the amputation what then? In the vast majority of instances on the eighth day there is a black line around the edge of the stump and there is a repetition of the condition I believe it is poor surgery under the circumstances to sew that wound up I have had almost 100 cases of this in the last twenty-five years and found it unsafe to sew these wounds up There is some poison that prevents healing of the wound There is something lacking in the blood of that particular case This struck me long ago as being the case and therefore I determined about ten years ago to substitute human serum to the wound Ascitic serum is kept on ice at 1 C , this is used to bathe the wound constantly The wound will generate healthy granulations and heal kindly Though I have not published this before I have still to see a recurrence in cases treated as above A necessary amputation high up should be treated in the same way I believe that in ordinary serum there is something which the patient needs to make the wound a healthy one I believe the results are so striking that it is now time that I should make them known

Dr J Frank Corbett, Minneapolis When one attempts to review the literature of senile gangrene one is impressed by the multiplicity of remedial measures Each particular remedy has been accredited with success None of these have ever come into general use Therefore one is inclined to conclude that the collateral circulation accomplishes a great deal sometimes and is given very little credit I do not believe that experimental work on animals is of much value in determining the treatment of senile gangrene In the first place, gangrene is common in the lower extremity and the blood supply of the leg in animals is very different from that of man In addition to that, when we come to study the limbs which have been amputated for senile gangrene we find there are many general changes aside from the local anatomic changes When we take such a limb and perfuse it with Ringer's solution under conditions imitating the blood pressure and pulse pressure of that member, we find that through the arterial side the rate of flow is very different in senile gangrene from what it is normally In addition to that we find even in cases that are not recognized as diabetic changes in the blood sugar I have been surprised at the high sugar content of the blood of some of our cases where nothing came through in the urine In addition to this, these cases are usually complicated with kidney lesions and we find that the blood has an increased urea and other components I am just beginning a study on the viscosity of the blood, in which, to my surprise, I find an increased viscosity occurs in other conditions besides thrombo-angiitis obliterans Therefore I do not believe we are at the present time in a position to say positively that we have a remedy in anything short of amputation In the normal limb it is impossible to reverse the circulation in twenty-four hours of perfusion with the best apparatus I could make to represent the heart's action Sometimes after hours of such perfusion we got a few cubic centimeters of fluid I do not believe that the blood that we got through by breaking down these damaged vein valves and working back was anywhere near enough to supply the vitality of the limb But possibly some such condition as that may account for the early successes and improvements reported by Bernheim

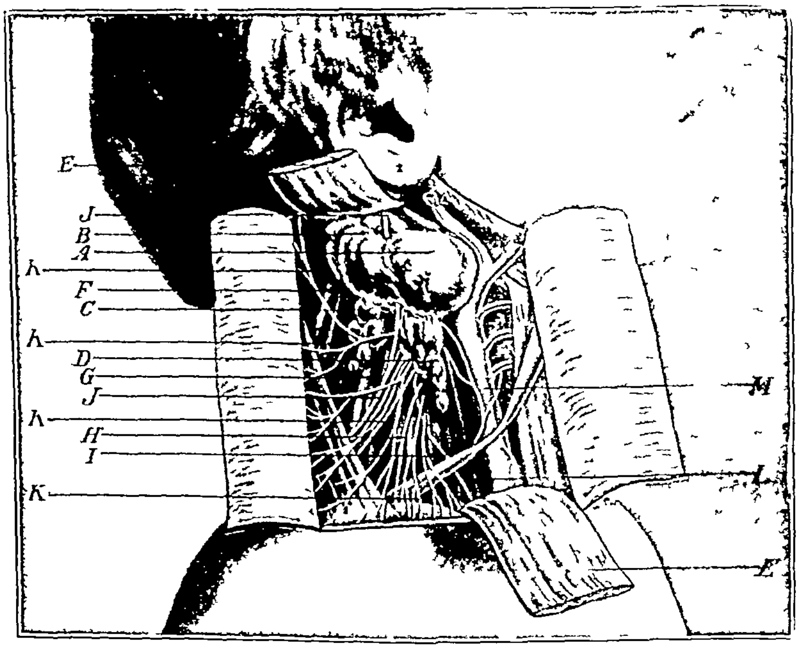

Fig 1—Early stage of tuberculosis of the neck lymphatics *A* tonsillar node caseous *B* tuberculous nodes of the subparotid group *C* posterior nodes *D* nodes of the deep jugular chain *E E* sternomastoid muscle *F* levator anguli scapulae muscle, *G* scalenus posticus muscle *H* scalenus medius muscle *I* scalenus anticus muscle *J J* spinal accessory nerve *K K K K* branches of the cervical plexus *L* phrenic nerve *M* internal jugular vein

Dr J Shelton Horsley, Richmond, Va I am not proposing any operation that cures all cases of threatened gangrene Ligation of the femoral vein is a procedure originally proposed by von Oppel and, in certain types of threatened gangrene, seems to help In the early stages of thrombo-angiitis just before the clot forms all of the coats of the vessel are infiltrated with small round cells and the infiltration does not disappear until the clot is well organized This certainly seems to indicate an inflammatory origin Practical clinical knowledge should go hand in hand with laboratory work If the gentlemen who object to the conclusions that we have reached are not convinced by the evidence, which includes the usual injection method of studying blood vessels, roentgenograms, dissections by a professor of anatomy, and then the work of Stetten on limbs amputated for this very disease, I confess I do not know what will move them The reversed vein will, of course, spurt if it is cut before the blood reaches the valves in the smaller veins It is mainly the relation of cubical contents to square surface, and if a large varicose vein would reach to the foot probably the reversed injection would go there also This does not in any way alter the situation Our experimental work together with the experimental work of Stetten on amputated limbs shows that in no single instance did the reversed circulation ever reach the foot The clinical improvement following reversal of the circulation has already been explained in the paper and is due to the balancing of the circulation I am not an advocate of any one method of treatment for slow or threatened gangrene, though I think in certain instances ligation of the femoral vein may be helpful

TUBERCULOSIS OF THE CERVICAL LYMPHATICS

A STUDY OF SIX HUNDRED AND EIGHTY-SEVEN CASES *

CHARLES N DOWD, MD
Surgeon to the Roosevelt Hospital
NEW YORK

Modern students of tuberculosis believe that tuberculous infection usually comes in childhood and that it may develop then, or be quiescent, or be cured If quiescent, it may show renewed activity at later periods of life Baldwin[1] says

> Childhood is the time of infection, youth the time of superinfection, and that from extension of the primary disease

McCleave[2] says

> It is now generally conceded that infection with the tubercle bacillus is, in the majority of cases, an incident of early life, and that, regardless of the time of development of clinical symptoms, tuberculosis is, in its origin at least, essentially a disease of childhood

Francine[3] says

> This infection during childhood does not, as a rule, develop into pulmonary tuberculosis at that time, but lies dormant in the lymphatic system, or is latent until adult life, when it breaks forth or manifests itself in pulmonary localization It is largely children infected by contact in their homes who furnish later the ever oncoming crop of consumptives

A large number of similar quotations could be made to show the present general belief that primary tuberculous infection usually occurs in childhood and that this fact should be appreciated if we would combat the disease intelligently

Tuberculosis of the neck lymphatics may be advantageously studied from this point of view Childhood is the period when the infection most commonly comes, and this infection may be cured, it may lie dormant with the possibility of later activity, or it may extend rapidly In each of these events it presents definite clinical pictures, and since the nodes are near the surface, there is a remarkable opportunity to study the peculiarities of the disease.

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* Read before the Section on Surgery General and Abdominal at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Baldwin Bull Johns Hopkins Hosp 1913 xxiv 209

[2] McCleave T C The Relation of Bovine Tuberculosis to Early Tuberculosis in Children Am Jour Dis Child, September 1914 p 210

[3] Francine A P The Underlying Factors in the Spread of Tuberculosis The Journal A. M A., March 7, 1914 p 767

This paper is based on a study of 687 cases in which operation was performed by myself or by my associates or assistants under my observation during the last twenty-two years. The cases have been followed with great care. During a part of the time a special fund has been available for that purpose, and a great many patients have been brought to the hospital for inspection from time to time. The mass of observation thus accumulated has been large, although there is a limit to the possibility of tracing the class of people who live in the New York tenements. There were also periods when little "following up" was done. During certain parts of this time the greater portion of the patients have been children between the ages of 3 and 14 years, and the results with them have been wonderfully satisfactory. During other parts there have been many adults with widely disseminated tuberculosis, and the results with them have been discouraging. It seems best, therefore, to group the patients according to the period of development which their tuberculosis has reached and to study the characteristics of each group.

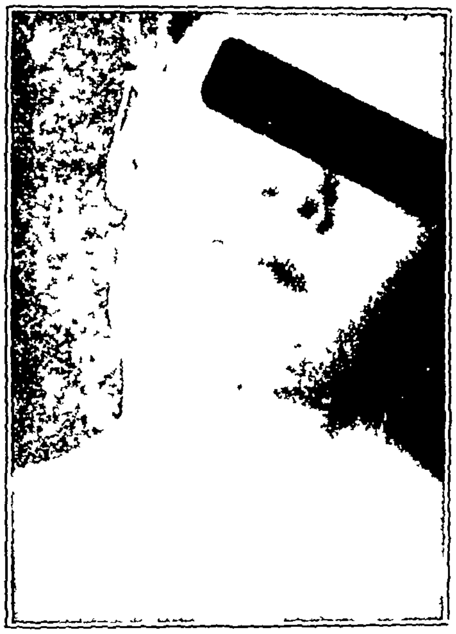

Fig. 2.—Patient in early stage of tuberculosis of the neck lymphatics.

GROUP 1

Whether tubercle bacilli are inhaled with the air or swallowed with the food, the crypts of the tonsils, faucial and pharyngeal, offer possible lodging places. The faucial tonsils are particularly likely to harbor them. Enlargement of the upper cervical lymphatics promptly follows such infection, thus establishing what we may call the early stage of lymphatic neck tuberculosis. The proper understanding of this stage is important.

The route of infection from the tonsil to the tonsillar lymph node is a very short one. This has been graphically described by Wood.[4] The tonsillar node is one of a group of nodes which lie beneath the parotid gland and the mastoid process and which are covered by the sternomastoid muscle. This group constitutes the first great line of defense against the invading tubercle bacilli. The invaders cause swelling, fibrosis, caseation and possibly abscess formation, but if the defense holds there is a distinct stage when the process is still local and has extended very little beyond this upper group of lymph nodes.

Figure 1 indicates the condition. Figures 2 and 3 indicate the appearance of patients who have this condition. Some patients, however, had somewhat more extensive inflammation than Figure 1 indicates. Since infections into the submental, submaxillary and parotid nodes also drain into the upper part of the jugular chain, some of them are also included in this group. The average age of the entire group was 8.03 years.

Sixty-seven of these patients were followed from six to twenty years, 23 were followed into the sixth year, 36 into the fifth year, 53 into the fourth year, 61 into the third year, 65 into the second year, and 49 into the first year, 98 were not observed after leaving the hospital, 91 per cent. of the patients traced were apparently cured when last seen, 8.75 per cent. showed slight evidence of recurrence, 0.25 per cent., that is, one patient, had died of intercurrent disease—typhoid fever, 8 per cent. had secondary operations during the period of observation.

Thus we see that for this class of patients the results are eminently satisfactory. It is hard to think of another form of surgical operation which gives better results. These results were obtained in spite of bad hygienic conditions, since most of these patients had to return to insanitary tenement house surroundings.

It has been suggested that many of these cases had the bovine type of tuberculosis and that this accounts for the good results.

Drs. Park and Krumwiede[5] have examined many of these cases to determine this question. It is interesting to note their findings for patients from 5 to 16 years, which showed the bovine type in only 29.6 per cent.

GROUP 2

The patient's power of dealing with tuberculosis largely determines the stage of the disease in which we see him. Many of those in Group 1 seek surgical aid because abscesses form within the subparotid nodes, break through the node capsule and cause unsightly swellings. If these abscesses break and form sinuses, or if the inflammation progresses without abscess formation, the nodes along the entire jugular chain and those along the trapezius border may become enlarged. This constitutes another pathologic and clinical picture which we may study as Group 2. Figure 4 indicates the gross pathologic condition in this group, and Figures 5 and 6 show the appearance of two of the patients. There were 185 patients in this group. Their average age was 15.9 years, nearly double that of Group 1. Sixty-nine of them were over 20 years of age. Twenty-nine of these patients were followed from six to twenty years, 11 were followed into the sixth year, 18 into the fifth year, 14 into the fourth year,

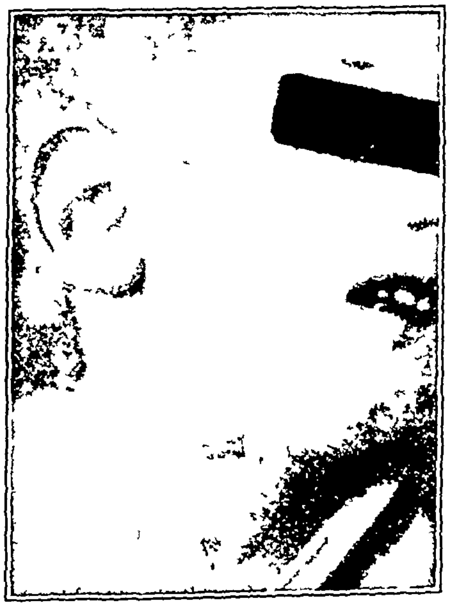

Fig. 3.—Patient in early stage of tuberculosis of the neck lymphatics.

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[5] Park and Krumwiede: Jour. Med. Research, 1910, xxiii, 205.

24 into the third year, 19 into the second year, and 10 into the first year, 60 were not observed after leaving the hospital, 68 2 per cent of the patients traced were apparently cured when last seen, 23 8 per cent showed recurrences when last seen, 5 5 per cent had died of intercurrent disease, partly tuberculous, 2 4 per cent, or three patients, died in the hospital, two from hemorrhage, and one from thrombosis, 28 5 per cent of the traced patients had two or more operations

It is thus seen that the results obtained in Group 2 were greatly inferior to those obtained in Group 1 We believe that nearly all of these patients passed through the stage shown in Group 1 It would have been much better if they had had their operations then Very few patients who have thorough operations when in Group 1 ever reach Group 2

GROUP 3

There is another division those with diffuse tuberculosis, which we may call Group 3 The patients show little power of resisting tuberculosis The neck infection quickly involves a great number of nodes, and there are usually evidences of tuberculosis in other parts of the body There were fifty patients in this group Their average age was 12 7 years, about midway between Groups 1 and 2 Thirteen of these patients were followed from six to seventeen years, 3 were followed into the sixth year, 5 into the fifth year, 2 into the fourth year, 5 into the third year, 9 into the second year, and 6 into the first year, 76 were not observed after leaving the hospital, 1 died in the hospital, 34 per cent of the patients traced were apparently cured when last seen, 43 2 per cent were suffering from recurrences or other forms of tuberculosis, 20 4 per cent had died of intercurrent disease, largely tuberculosis, 1 patient died in the hospital, soon after a minor palliative operation

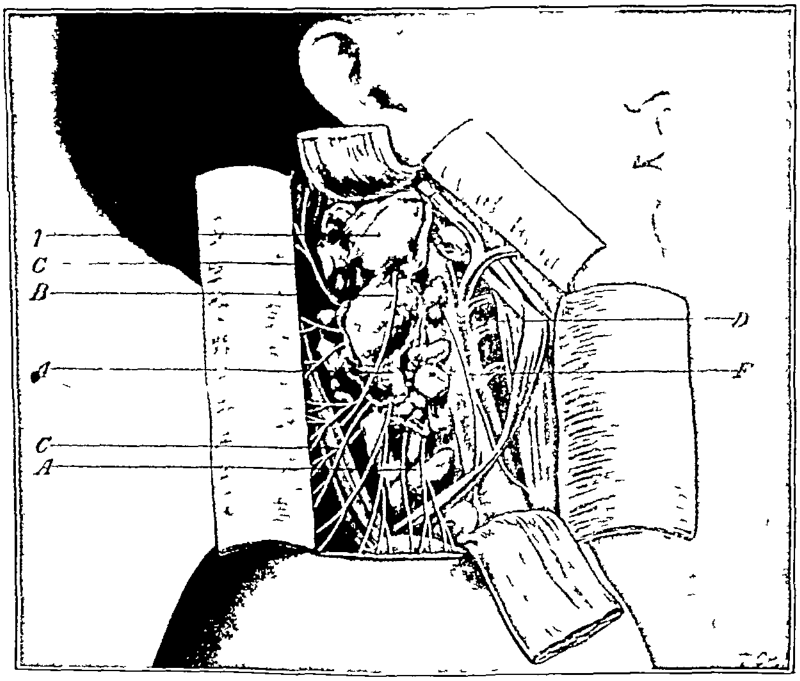

Fig 4—Late stage of tuberculosis of neck lymphatics *A A A* tuberculous lymph nodes *B* spinal accessory nerve *C C* branches of cervical plexus *D* internal jugular vein *E* communicans hypoglossi nerve

Figures 7 and 8 indicate the appearance of two patients in this group

It is manifest that treatment of this type of cases is far from satisfactory If, however, one third of them are apparently cured after long periods of observation, we have some encouragement

COMMENT

On studying these groups of cases it is easy to see why so much confusion exists about this subject Certain types of cases predominate in individual clinics Those observers who see mainly cases of Group 1 will have very optimistic ideas about the curability of the disease For instance One continuous sequence of 100 patients in this series showed 86 per cent in Group 1 During the follow up work in which these patients figured, there were 106 patients examined ninety-four of them were recorded as strong, vigorous, ruddy or in good health Seven were recorded as pale or not strong, and only five were advised to have further operation for recurrences On the other hand, when the work has been in a hospital, to which a different type of patients came—where many patients were in Groups 2 and 3, the results have been much less satisfactory, and complications and recurrences have been more frequent

Much confusion exists about the term "operation" as applied to these cases If the incision of an abscess, or the removal of a single node, is called an "operation," we shall have very poor operative results, if the term "operation" means the removal of all the enlarged lymph nodes in the neck, we shall have very good operative results The most common error comes in those patients who have cold abscesses When these abscesses are incised, a smooth layer of inflammatory tissue is found within This constitutes the deep abscess wall, and seems continuous with the deep fascia One may easily believe that the abscess comprises the entire swelling, and that there are no enlarged nodes still deeper in the neck, and in this belief, may be content with simply draining the abscess

As a fact, these cases regularly have groups of nodes in the usual location beneath the sternomastoid muscle, and unless these nodes are found and removed, the operation is futile The tubercular detritus, the so-called "pus" of the cold abscess, is no bar to thorough operation, since it seems to have little or no infective tendency, and healing takes place about as kindly as though it had not been present Failure to appreciate the extent of the disease is a very common error Inadequate and badly placed incisions and incomplete operations follow

The technic of operation cannot be given in this paper[6]

All operations should be done with due regard to the anatomy of the neck, and with careful precautions against nerve injury, particularly avoiding the spinal accessory nerve, and the lowest branch of the facial nerve Transverse incisions give suitable exposures

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[6] Details of the technic used for most of these cases were published in Annals of Surgery 1905 xlii 49 and 1908 xlviii 169 Judd (Ann Surg 1910 lii 759) gives the details of operation for extensive cases by the posterior incision and Mitchell (Bull Johns Hopkins Hosp 1902 xiii 161) describes the operation by anterior incision

Dr. Robert [illegible] Library
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for the majority of the cases, and have the great advantage of leaving scars which do not stretch, and hence are almost invisible With the aid of suitable retraction, extensive dissections can be done through these transverse scars In the far advanced cases, however, the scar is not the important factor, and longitudinal incisions should be used, since they give easier access to the masses of enlarged nodes

It is not the purpose of this paper to make exhaustive comparisons between the different forms of treatment which are used for this disease There are many of them Roentgen-ray, sea bathing, heliotherapy, tuberculin, Bier's hyperemia, etc It is rather my purpose to call attention to the natural history of the disease, and to the results of the treatment which I have used I have, however, visited various institutions in which these measures are used, both in this country and abroad, and have noted at least three elements which should be considered (1) differences in diagnosis, (2) differences in interpretation of what constitutes an operation, and (3) differences in interpretation of what constitutes a cure

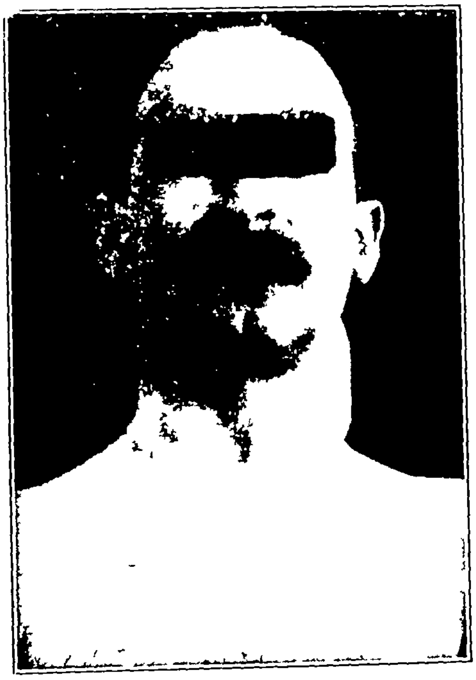

Fig 5 —Late stage of tuberculosis of the neck lymphatics, Group 2

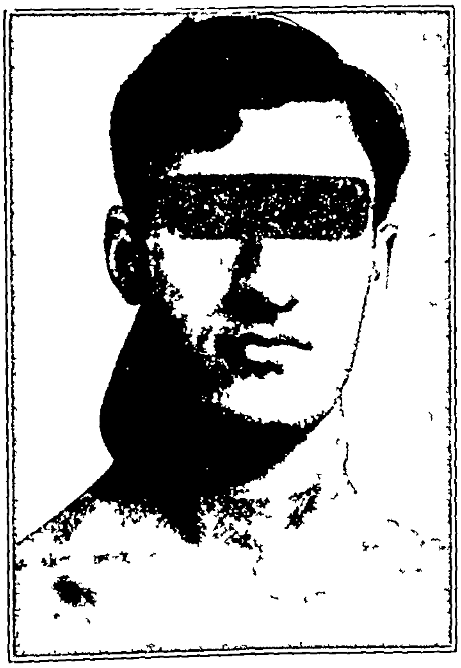

Fig 6 —Late stage of tuberculosis of the neck lymphatics, Group 2

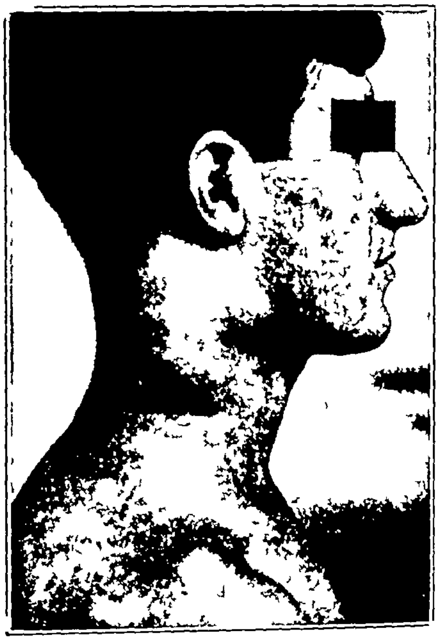

Fig 7 —Late stage of tuberculosis of the neck lymphatics, Group 2

1 Clinicians who do not have the opportunity of removing the lymph nodes and having them examined microscopically have come to consider many cases tuberculous which have not been so considered in this study For example, Hawes says

> In regard to the diagnosis of tuberculous adenitis, Allen believes that 60 per cent of enlarged glands in children are tuberculous, Philip is of the opinion that enlarged cervical glands should be considered tuberculous unless there is definite indication to the contrary It is my custom to consider these enlarged glands as tuberculous, if, on careful examination of the patient and treatment of all possible sources of infection, no other cause can be found

It is manifest that on this basis many cases are treated as tuberculous which have not been so considered in our work, just as the older observers considered hip joint inflammations tuberculous, which we now know to be due to the pyogenic bacteria

Very early in this study, such nodes, when removed, were found to show only hyperplasia, and since we do not advise the removal of hyperplastic nodes, every effort was made to avoid operation on them

Dr Farr, who saw many of these cases in the Wilkes Dispensary, states that probably five patients with hyperplastic adenitis apply there for every one with tuberculous adenitis If a small proportion of them had been diagnosticated tuberculous, we would have had a very exaggerated idea of the curability of the disease

2 It is astonishing to note the class of cases which are cited as operative failures This has already been referred to We do not talk about the operative treatment of appendicitis when the appendix is regularly left in position, nor about the operative treatment of cancer, unless every effort is made to remove all the cancerous material, nor do we talk about prostatectomy unless the prostate has been removed We surely should not talk about the surgical removal of tuberculous neck lymphatics unless there is evidence that thorough operations have been done

3 There seems to be only one way of determining the condition of the lymph nodes, that is, to study enough of them after removal to form a fair comparison between the preoperative appearance and the postoperative findings It is possible that a patient should have a ruddy appearance and yet should have masses of tuberculous lymph nodes in the neck Such patients have been considered cured by careful and honest advocates of some of the methods of treatment here given, but have not been classed as cured in this study

If, therefore, we make a comparison between operative and nonoperative methods of treatment, we must remember that those who see the lymph nodes, and those who do not see them, must of necessity have different conceptions of the conditions with which they are dealing With this in view, we must believe that our patients should have the advantage of such forms of treatment as are likely to help them If operation gives them the best likelihood of cure, they should have operation If operation plus another form of treatment is desirable, they should have both If another form of treatment gives a quicker and better cure, it should be used, but a patient should not be allowed to drag from Stage 1 to Stage 2 while indefinite forms of treatment are being tried, nor should he be kept under treatment for months or even years with discharging sinuses and disturbed health when a forty minute operation and ten days' after-treatment would result in cure

ABSTRACT OF DISCUSSION

Dr John F Golden, Chicago I think Dr Dowd's division is the same as ours that is, cases occurring in children and in adults Tuberculosis of the cervical lymph glands in children has a tendency to cure itself without the aid of surgical intervention In the adult it is quite different and the division might be carried to the descending infections which become limited in the chain When it is stopped at a point and held, the patient's resistance tends to cure There is still another type in which the tuberculosis of the cervical glands ascends from the mediastinum, also tuberculosis of the cervical lymph glands coincident with a tuberculosis of the lung, peritoneum or elsewhere The differentiation of these types and the cure of the tuberculosis are accomplished not by removing the glands but rather by increasing the patient's resistance We have found the tuberculin method the best We use the standard solutions hypodermically both diagnostically and therapeutically, together with the administration of fats in the forms of an emulsion of cod-liver oil, butter and cream We educate the patient to take his temperature at regular daily intervals as a control to the administration of the tuberculin Uniformly in children we secure by this method a recession of the glands, some of them breaking down and discharging a cheesy substance, but uniformly progressing to a cure without enucleation The usual diagnostic test used by us is one twentieth of a drop of pure tuberculin This is given after the patient has been educated to take his temperature at three-hour intervals during the day The temperature range from sixteen to twenty-four hours later is a good index to the extent of the infection and the degree of resistance of the patient In cases in which we find a tuberculosis of the cervical lymphatics and the patient gives a great degree of reaction, temperature, nausea, vomiting and headache, there is as a rule a tuberculosis elsewhere

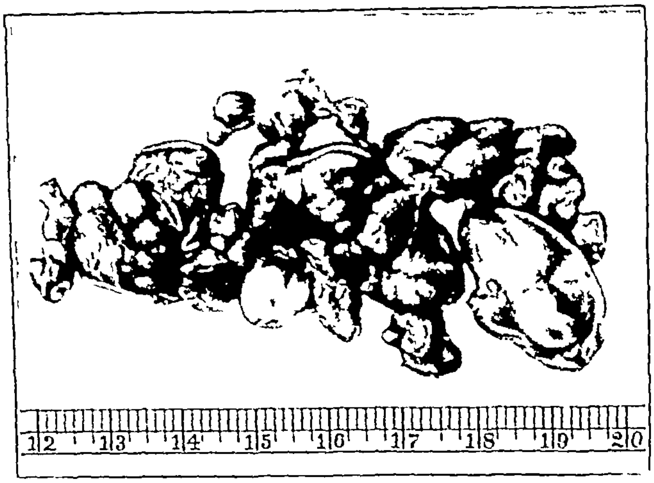

Fig 8 —Chain of tuberculous lymph nodes removed from patient in Group 2

Dr. Robert T Morris, New York Perhaps the majority of cases of tuberculosis of the lymph glands of the neck, in the various groups in young patients and in older patients in cases in which the glands have not already broken down do not require operation at all provided that the patient is so situated at hospital or in the private house that he may have the full benefit of our knowledge of the subject First, I would emphasize that tuberculin must be used properly Unless tuberculin is used properly it may be injurious Next, increasing the general resistance of the patient is most important The full meaning of that is not clear to any except those who have made a special study of tuberculosis and who know that no two patients are to be treated alike In the cases suitable for local treatment, not operative my best resource for dealing with many of these cases is along the lines of the Bier idea of hyperemia In some cases we have had very successful results from using iodoform and oil injection It is rather tedious and troublesome for young patients, who do not bear it well They do not allow us to handle them In other cases we have done well with Roentgen ray But best of all has been the idea brought forward by Bier In order to carry that out in suitable cases I have the patient rest the neck against a hot water bag for several minutes, then an ice bag again the hot water bag for several minutes, then the ice bag for several minutes Many children will play with their toys and older patients will read something which they had not the opportunity to read before because they have been too busy if you persuade them that by carrying on the method of Bier hyperemia you may so stimulate the leukocytosis that tuberculosis disappears It is a slow process and requires patience on the part of the patients Most of these patients of all classes are curable without any sort of operation whatsoever provided they are managed according to the best methods of today

Dr W E Ladd Boston For the last four or five years I have been following the teaching of Dr Dowd I cannot disagree with him on many points but would like to emphasize some I have operated in about 160 cases of tubercular cervical adenitis mostly in children One hundred and thirty of these have been followed for from six months to five years Of that number 93 per cent are apparently cured which is practically the same result as Dr Dowd gets The importance of the portal of entry should be emphasized In my series of cases the tonsil was believed to harbor the primary focus in from 75 to 80 per cent of the cases Many of these have been examined microscopically and show miliary tubercles often situated close to the crypts or close to the posterior capsule of the tonsil I believe it is just as illogical to remove the glands from the neck without removing the tonsils as to remove tonsils without removing the glands from the neck In either case you leave tuberculosis behind In removing the tonsil the capsule should

Fig 9 —Patient with diffuse tuberculosis Group 3

Fig 10 —Patient with diffuse tuberculosis Group 3

be included as otherwise foci of tuberculosis may be left and be the starting of later trouble I believe very strongly with Dr Dowd that these cases should be taken when the glands are confined to the upper triangle of the neck, the subparotid group, when the operation is easier to perform and more effective If you are going to wait and try tuberculin, hygiene without operation, Roentgen ray, heliotherapy and other forms of treatment you are going to let a great many cases progress to tuberculosis which is much more disseminated and much more difficult to cure At the Children's Hospital in Boston, we get many cases which have gone for two or three years under other forms of treatment and present as the result a large number of sinuses—a difficult situation to handle In the early cases the results of surgery are most satisfactory One other point I believe to be worth mentioning is the type of infection Raw's studies showing that surgical tuberculosis, that is, glandular and bone tuberculosis, does not exist in countries where cow's milk is not used, though phthisis is common, are suggestive The work of Mitchell of Edinburgh who found that a very high percentage of these cases were due to the bovine type of bacillus is also suggestive that milk may be responsible for the high prevalence of this disease If further investigations show this to be so the importance of furnishing a nontubercular milk supply becomes apparent

Dr Willy Meyer, New York Dr Dowd showed that the very beginning of the trouble usually is that group of glands which is situated in the upper triangle of the neck No doubt if we take these cases in time we will prevent further trouble The difficulty is that we do not get these cases always at this period Sometimes we see them with the big chain of glands in front and behind the sternocleido I do not know a better method if patients have been sick for a number of years and the glands are hard and firmly adherent, than to make, in the male at least, an incision in front and behind the sternocleido and divide the muscle transversely, forming an upper and lower flap Then taking the internal jugular as a guide we can make a thorough extirpation In the female we must try to get along in such cases with one incision, posterior to the muscle and not running up so high, to avoid scarring as much as possible For glands in the upper triangle there is no better incision than the one Dr Dowd showed Dr Morris mentioned conservative treatment, and he touched on Bier's hyperemia He has seen results follow alternating with heat and cold applications We can simplify the treatment by having the patient wear an elastic bandage around the neck, an ordinary garter elastic, with a hook sewed on at one end and a number of eyes at the other, for eleven out of every twelve hours Children as well as grown people do not object to it On the contrary, it often reduces pain and stiffness As soon as glands have broken down, aspirate and inject iodoform-glycerin, or stab the abscess and aspirate with a Bier's suction cup I have seen very good results from this method, even in the presence of hard glands, which is very exceptional

Dr Charles N Dowd, New York The statement, that glandular enlargements in children's necks tend to subside, must be taken with reserve The hyperplastic glands do subside, probably some of the tuberculous ones also subside, but the patients about whom this paper is written are the ones whose swellings did not subside Most of them had had various forms of treatment before we saw them and came to us because the swellings failed to subside under this treatment A more general understanding of the natural history of the disease is important Nearly all the patients show the conditions of Group I at the beginning and have a great tendency to pass into the stages shown in Group II and Group III The question of diagnosis is very important and has led to much confusion Clinicians who do not remove the lymph nodes have a great tendency to call them tuberculous when they really are simply hyperplastic I have had many consultations and conversations with them, have read their standards of diagnosis, have seen their patients and have removed some of the hyperplastic nodes at their request It is manifest that any form of treatment which is applied to hyperplastic nodes is likely to be successful and is misleading if the clinician thinks he has cured tuberculosis My associates and I have taken great pains to visit clinics where tuberculin is used, since we are earnestly seeking the best way to cure this disease I can mention one tuberculin clinic where there were more patients than in any other part of the institution to which it belonged and where I saw a whole series of these patients There was not a single one who seemed to be cured by tuberculin There were a number of patients who had lumps which needed operation, and there was one who had had a good operation and had only been treated with tuberculin for the induration which followed The opinion held in that clinic was that when the patients ceased to be hypersensitive to tuberculin they were cured, even if they still had enlarged glands The difference in opinion as to what constitutes an operation has led to great confusion Patients are shown as operative failures who never have had thorough operations The location of the scars makes this certain The point which I especially wish to emphasize is that it is not fair to let patients drag along from Group I to Group II or III while something is being done which simply hides what is going on within the neck We ought to take care of these patients in the curable stage, the same as we take care of patients with appendicitis, gallbladder inflammation or kidney stones Take care of them when you can cure them and do not let them drag along

OSTEOCLASIS AND OSTEOTOMY *

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Osteotomy is the oldest and the most popular operation for the correction of severe rachitic deformities of the legs in children, yet it has many disadvantages when compared with osteoclasis performed with the aid of the perfected Grattan osteoclast Some of its disadvantages are the production of a compound instead of a simple fracture, time required for operation, the danger of infection which, though it may be slight, nevertheless exists, time, care and expense necessary for antiseptic precautions, and the pain that always accompanies an open wound But the most serious objection to osteotomy is the delayed union as compared with union after osteoclasis This is undoubtedly due to the severing of the continuity of the bone shaft and the carrying of soft tissue into the open space with the chisel This delayed union has frequently to be supplemented by postoperative treatment, which is never required after rapid osteoclasis

Tubby[1] says that "nonunion after osteoclasis is scarcely, if at all, known, whereas it is seen from time to time after osteotomy"

Neither osteotomy nor osteoclasis should be performed on rachitic bone during the subacute stage The roentgenogram will show a clearly outlined epiphysis when lime is deposited sufficiently to produce a fair degree of eburnation

Under favoring conditions of a raw food diet and fresh air, eburnation is usually a process of only weeks or months

The earliest observers noticed that knockknee produced flatfoot, but the fact practically escapes attention that a mild degree of knockknee, that is just notice-

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit, June, 1916

[1] Tubby, A H Deformities, Including Diseases of the Bones and Joints, London 1914

able in the child, will frequently be sufficient in adult life to throw the center of gravity inside the inner border of the foot and produce a disabling flatfoot In such cases the only remedy must be a supracondyloid osteotomy, which the adult patient invariably looks on with abhorrence This emphasizes the necessity of correcting mild knockknees in children when a slight supracondyloid bending in the osteoclast will produce an ideal correction Experience shows that the lower end of the femur will bend in the osteoclast without fracture several years after eburnation has become so complete in the tibia that it will fracture with a loud snap Osteokampsis is the name given by Adolph Lorenz to the bending and stretching of bone without fracture

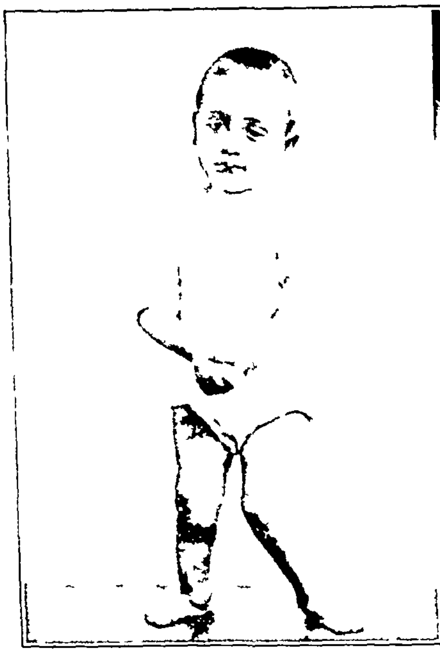

Fig 1 (Case 1) —Knockknees producing flat and pronated feet

Fig 2 —Roentgenogram in Case 1 two months after an eight second supracondyloid bending without fracture in the Grattan osteoclast

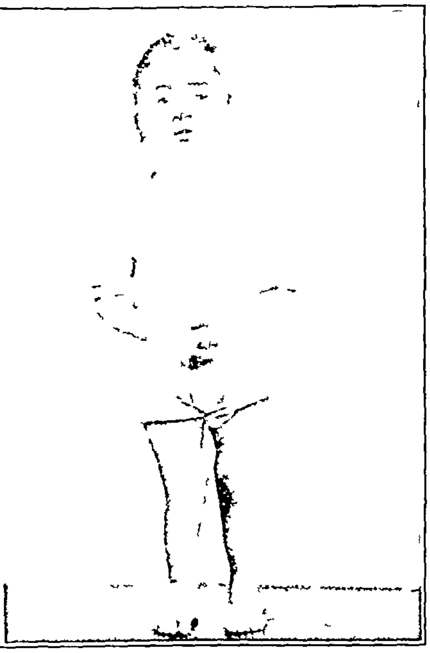

Fig 3 (Case 1) —Six weeks after bloodless correction of the knockknees showing arches of the feet restored

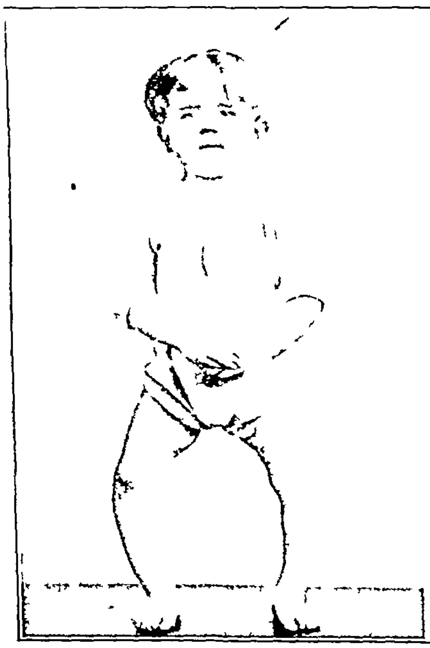

Fig 4 (Case 2) —Bowlegs patient standing with the feet widely apart in the voluntary attempt to bring the outrolled feet on a plane with the floor

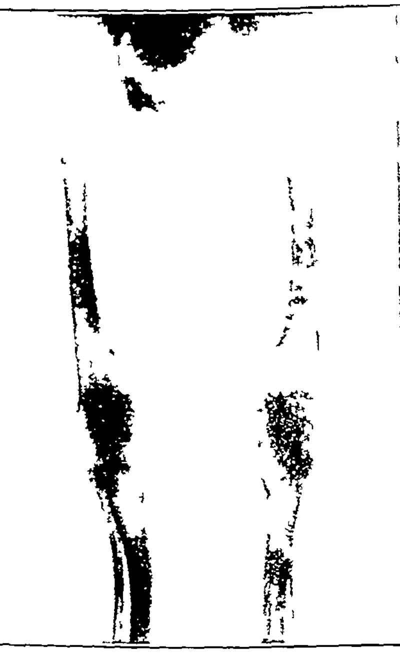

Fig 5 —Roentgenogram in Case 2 after an eight second bloodless overcorrection in the osteoclast without fracture

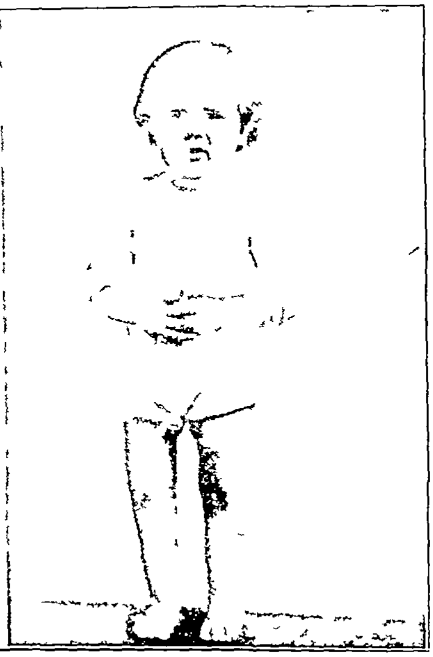

Fig 6 (Case 2) —Six weeks after rapid bloodless osteokampsis showing that both the bowlegs and the abducted feet have been corrected

Figure 1 (Case 1) presents pronounced knockknees, and the roentgenogram (Fig 2), taken two months after correction by osteokampsis, shows that the lower ends of the femoral shafts took extreme inbends without fracture, and Figure 3 shows the same patient with symmetrical legs and the pronated feet corrected

Bowlegs in a child should never be corrected by half by osteotomy, and have not been able to see any marked difference in the results In small children, I break the bones by hand and the results seem to be as good as those from osteoclasis

Dr. Wallace Blanchard Rachitic deformities have fallen off about 60 per cent in Chicago since immigration has declined on account of the war The children that are brought from warm climates to America get along well and do not develop rickets, but the children born of recent immigrants from Italy and Greece develop severe rickets I found, at one time, that 50 per cent of all of our cases came from Italy, Greece and Syria We get many rachitic deformities in colored children coming from the far South Concerning correction and overcorrection, we put up severe cases of bow-legs so that they look like knock-knees while they are in plaster, so thoroughly are they overcorrected, and we put up knock-knees so that they look like bow-legs in plaster A good share of the apparent overcorrection is lost in the plaster and under the cotton lining of the plaster In regard to nonunion The roentgenograms show a well-defined epiphysis when the case has eburnated sufficiently to be past the danger of rachitic nonunion Dr Parker's case was probably still in the subacute stage That was very likely the reason why he got nonunion, although the boy was old enough for complete eburnation to have occurred

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LUES MALIGNA

WITH REPORT OF TWO CASES

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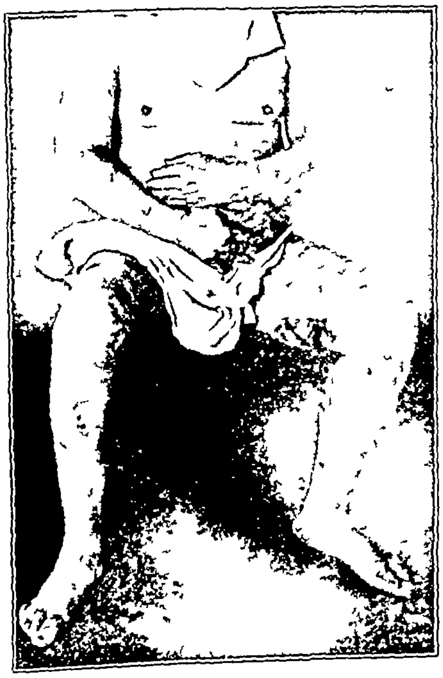
In spite of the voluminous and often redundant literature on syphilis in our day, there is a significant lack of mention of that fulminant type of syphilis which we designate "lues maligna"

During the past five months, two patients with lues maligna have been admitted to the wards of the Rochester Municipal Hospital Through the courtesy of Dr George W Goler, attending physician, and health officer of Rochester, N Y, I am able to report the following histories



Lesions in Case 2

Case 1—Two years before the patient, M G, girl, aged 9 years, was born, her father contracted syphilis For the past year, he has been confined in a hospital for the insane, with a diagnosis of paresis The mother admits a history of chronic sore throat and general alopecia, but denies any eruption, condylomas, etc A Wassermann test, made on the mother in January, 1916, was 1 plus The patient was born at term after an uneventful labor Until 7 years of age, she appeared to be a robust, healthy child Two years ago, the mother noticed that the glands in the neck were enlarged However, the general health was unaffected One year later, the removal of adenoids and hypertrophied tonsils was advised Shortly after the operation, a chronic serous nasal discharge developed The fauces remained slightly inflamed, and there was continuous slight sore throat The condition remained the same for about six months The nasal discharge persisted in spite of continued treatment Ten months after the tonsillectomy, and two months before her admission to this hospital, the nasal discharge began to be purulent, and, as the mother said, "matter seemed to come from between her teeth" The odor was that of necrotic tissue Several small pieces of bone were discharged from a sinus that had formed in the palate After this, there was a regurgitation of liquids through the nose Shortly after her admission to the hospital, the entire alveolar process on the left side of the superior maxilla separated en masse A Wassermann test, made on her entrance into the hospital, was plus 4, reaction complete She received 0 45 gm of salvarsan, and inunctions of mercurial ointment thrice daily

Salvarsan was administered five times at intervals of about two weeks The amount given varied from 0 4 to 0 5 gm One month after her admission, the uvula, pillars of the fauces, and the posterior wall of the pharynx became necrotic Toward the end, deglutition became impossible, there was continuous slight hemorrhage Death occurred three months after entrance into the hospital, and one year after the removal of the tonsils and adenoids About one week before death, the left cheek became necrotic, and a sinus communicated with the oral cavity This area of necrosis was spreading rapidly Necropsy was not permitted

Case 2—W E, man, aged 42, colored, single, porter in hotel, whose father was dead, of unknown cause, whose mother, two brothers, and two sisters were living and well, and one brother died in infancy of unknown cause, had pertussis in childhood, but otherwise had always been well He used alcohol and tobacco to excess Twenty years before admission, a sore appeared on the glans penis He was told that he had syphilis, and treatment by mouth was begun and kept up for nine months He had received no specific medication since that time He denied any history of eruption, alopecia, condylomas, or other manifestation of syphilis other than the history of the primary lesion

About six weeks before admission, he consulted a physician for the relief of a mild sore throat There seemed to be some purulent material in the crypts of the tonsils These areas were touched with a silver nitrate stick, and an antiseptic gargle was prescribed The condition seemed to improve under this treatment Three weeks later, he returned to his physician complaining of pain in the wrists and ankles The temperature was 101 He was ordered to bed, and salicylates were given in moderate doses It was thought that the sore throat and pain were of rheumatic origin Three days after, a necrotic odor was noticed on the breath An examination of the throat revealed an area of necrosis on the tonsils, and a partial destruction of the uvula When the throat became involved the second time, a few scattered purpuric spots appeared on the legs and trunk These purpuric areas increased in number and size They were more numerous on the arms, legs and back There was no pain or itching

Two weeks later, a purulent discharge was seen to escape from beneath the prepuce The prepuce could not be retracted Two days after the discharge was first noticed, a small necrotic area appeared on the dorsum of the prepuce This spread rapidly, until it involved the entire prepuce, part of the glans, and nearly all of the shaft of the penis Five days before admission, several large bullae developed on the inner surface of both thighs These were opened, and rapidly became deep, sloughing areas For the past three days, there had developed a marked mental slowness At his previous visits, the physician had considered him to be of normal mentality

The white cell count was 12,000, the differential count gave polymorphonuclears, 77 per cent, small lymphocytes, 16 per cent, large lymphocytes, 6 per cent, eosinophils, 1 per cent Five c c of blood were mixed with 75 c c of glucose bouillon and incubated for three days There was no growth at the end of that time Until this time, a possible syphilitic cause was not considered The history of infection twenty years before had not been obtained A Wassermann test was found to be strongly positive He was now admitted to the hospital

Salvarsan, 0 6 gm , was given and massive doses of mercury were ordered to be given by inunction In the following five days, there was total destruction of tonsils and uvula A deep slough appeared on the posterior part of the dorsum of the tongue and on the inner side of the cheek opposite the last left molar tooth The ulceration extended forward until nearly the entire tongue became necrotic The palate was breaking down, and a sinus into the nose was being formed During this time the ulcerative process destroyed the glans penis and part of the corpus cavernosum The corpus spongiosum was unaffected and micturition remained normal until death The heart sounds indicated great myocardial degeneration, there were no valvular murmurs The urine showed considerable albumin with hyaline and granular casts

Necropsy was performed twelve hours after death The pleura and peritoneum were normal The lungs were very edematous, with several hemorrhagic spots on the lower surface of the right lung The heart muscle was much degenerated The valves were normal There was an area of aortitis 2 by 4 cm at the beginning of the aorta The liver was slightly cirrhotic, the capsule not adherent The spleen was very light in color and much softer than normal The right kidney was hypertrophied (compensatory?) There was moderate parenchymatous nephritis The left kidney was entirely cystic There was no trace of kidney substance Smears made from the liver and spleen and stained with silver nitrate after the method of Stern, showed the presence of the *Spirochaeta pallida*

In these histories, several interesting features are common to both

1 They fulfilled the requirements of our definition of lues maligna the great destruction of tissue with symptoms of a toxemia, and the total absence of response to antisyphilitic medication, however vigorously employed

2 In each, there was a long period of apparent good health followed by a rapid development of late syphilitic manifestations

3 In each, the tonsil was the starting point of the illness and of the necrotic process

4 In each, the severe systemic disturbance and the rapid destruction of tissue were preceded by traumatism to the tonsil or peritonsillar structures, in one case mechanically by the tonsillectomy, and in the other by the application of the caustic

Did nests of the spirochetes lie dormant, or perhaps encysted in the tonsil, needing only the irritation and trauma to force them into the blood or lymph channels? The blood culture showed the absence of the ordinary bacteria of suppuration, while the presence of the spirochete must point conclusively to a pure syphilitic infection

However, some other condition is also operative to produce the clinical picture Probably, we must conceive a different strain of the spirochete of greater virulence, or a natural or acquired lack of defense on the part of the organism, humeral or cellular

War Mortality—Of the Boer War (1899-1901) only two features need be noticed First, that typhoid attacked 57 684 men and killed 8 022 while the Boers only killed 7,781 Bacteria were more deadly than bullets, as Osler has said Secondly, the modern missile was for the first time in general use with the result that instead of about 15 per cent of the wounded losing their lives, only about 8 8 per cent died The wounds from the new missile were much less severe and healed more quickly than ever before The first aid packet also had come to the aid of the soldier—W W Keen, Before and After Lister, *Science*, 1915, xli, 845

INTRASPINAL INJECTIONS OF MAGNESIUM SULPHATE IN DELIRIUM TREMENS *

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This is a preliminary report based on the study of twelve cases of delirium tremens occurring in the Philadelphia General Hospital The suggestion for this treatment came from the relief given a patient suffering with tetanus who had marked delirium and considerable excitability, followed by recovery

In the cases treated, lumbar puncture was performed and varying quantities of cerebrospinal fluid were removed according to the amount of pressure found. The amount removed varied from 10 to 40 c c After removal of the cerebrospinal fluid, a cubic centimeter for every 25 pounds of body weight of a 25 per cent. solution of magnesium sulphate, at a temperature ranging between 95 and 100, was introduced by means of a cubic centimeter syringe, through the lumbar puncture needle into the canal These treatments were all given with the patient in a sitting posture After the introduction was completed, the patient was returned to a semirecumbent position No patient received a second treatment All these patients required almost constant attention for twenty-four hours after the treatment was instituted, careful attention being paid to the nourishment, bladder and rectum There were ten recoveries and two deaths It might be mentioned that the chemically pure magnesium sulphate was used and was specially prepared in ampules A digest of the clinical histories of three cases may prove of interest

REPORT OF CASES

Case 1—R H, man, aged 38, admitted Nov 24, 1915, meat cutter by occupation, weight 150 pounds, before admission had been drinking for a little over a week, on an average, ten whiskies a day He was markedly hallucinatory, could neither sleep nor eat, and was extremely nervous The family history had no bearing on the present trouble The patient was noisy, talkative, rambled incoherently, and had marked motor restlessness and tremors of the lips, tongue and extremities He required mechanical restraint No physical disorder was found The knee reflexes were slightly exaggerated This was a fully developed case of delirium tremens.

November 25, delirium and motor restlessness continued. Sedatives were administered with little results and restraint continued November 26, the patient's condition was unchanged from that of the 25th At 5 30 p m lumbar puncture was performed and 20 c c of cerebrospinal fluid removed Six c c of a 25 per cent solution of magnesium sulphate were introduced At 6 40 p m the patient had developed an inability to raise either limb on command, but gripped the hand with a powerful grip when told There was no loss of consciousness Pain and touch senses were almost abolished, but the patient was sensible to deep pressure Both knee reflexes and plantar reflexes were abolished The patient slept during the night When aroused he could speak only in whispered tones There was relaxation of bladder and rectum November 27, he was entirely quiet and rational There was gradual restoration of function and reflexes during the day The patient continued to do well with no after-effects December 6, he was discharged from the hospital cured This case in a general way, illustrates the clinical course of the patients who developed the paraplegic state In the remaining cases there was weakness with diminished reflexes

Case 2 is one in which an attack of delirium tremens had certainly been aborted T B, man, aged 30, stevedore by occupation, white, weight about 160 pounds, admitted to the hospital Nov 17, 1915, began to use intoxicating liquors at 15 years of age For the past six months had indulged more freely He drank in all a pint of whisky a day Two days before admission, he began to feel sick, shaky and restless, had marked insomnia, could eat very little, had hallucinations of hearing of an obscene character, and also had hallucinations of sight He said that if he could take another drink these voices would leave him In the evening of the 17th this patient was admitted to the Psychopathic Ward of the Philadelphia General Hospital in an extremely restless condition with hallucinations both of hearing and of sight Motor restlessness was so extreme that he had to be restrained November 18, in the morning, restraints were removed, but the patient still continued restless and had tremors about the lips and fingers on extension He had had no sleep the night before He also continued hallucinatory At 3 p m lumbar puncture was performed, and 30 c c of clear cerebrospinal fluid were removed under pressure and 7 c c of a 25 per cent solution of magnesium sulphate were introduced On the evening of this day, he showed some weakness of the lower limbs, and both the plantars and knee reflexes were diminished There was no involvement of bladder and rectum The patient was not unconscious, but was inclined to be a little restless, not sufficiently, however, to require restraint

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* Read before the Philadelphia Neurological Society, Dec 17 1915

Next morning the patient was rational, all the hallucinations had disappeared, and during the day there was complete restoration of function and reflexes December 9 the patient was discharged from the hospital There were no after-effects

Case 3—M D, man, aged 43, weight 180 pounds, was admitted Dec 13, 1915, with a marked case of delirium tremens This patient's mental condition precluded the possibility of obtaining a history The history accompanying the patient did state that "yesterday he had 2 grains of morphin sulphate, one fiftieth grain of hyoscin hydrobromate, and 3 ounces of the syrup bromidum Added to this, he received 10 grains of trional and 2 drams of paraldehyd" On admission, he was in a low muttering delirium, with marked tremors and motor restlessness, and pin point pupils The skin was warm and dry and there was suppression of urine

December 14, at 11 a m, lumbar puncture was performed and 25 c c of cerebrospinal fluid were removed and 4 c c of magnesium sulphate introduced This small quantity of solution was given because of the weakened condition of the patient, despite his extreme restlessness In two hours a paraplegic state developed The patient died twelve hours after the treatment

SUMMARY OF TWELVE CASES

Seven of the twelve patients developed a paraplegic state in from one to two hours following the introduction of the magnesium sulphate with lost knee jerks, lost plantar reflexes, and relaxation of both sphincters The return of partial function occurred in from twelve to twenty-four hours after the development of the paraplegic state, with the gradual return of the reflexes and complete motor power Complete restoration of reflexes and function occurred usually in from thirty-six to forty-eight hours

The remaining five patients had weakness of the lower limbs with lessened reflexes These patients usually suffered from retention of urine Other constitutional disturbances noted were that the temperature rose from 1 to 3 degrees, and the respiration became more rapid and shallow There was also some acceleration of the pulse Those patients who had developed a paraplegic state could only speak in whispers In others there was no change in voice sounds

The rapidity with which the delirum and restlessness subside, with restoration to the normal within twenty-four hours following this treatment, is certainly of value, in view of the little good sedatives do and of the high mortality among these cases

Therapeutics

BLOOD PRESSURE

(Continued from page 436)

ALTITUDE

It has long been known that altitude increases the heart rate and tends to lower the systolic and diastolic blood pressures, that these conditions, though actively present at first, gradually return to normal, and that after a prolonged stay at the altitude may become nearly normal for the individual Burker[30] showed that altitude increases the red blood cells from 4 to 11 5 per cent, and the hemoglobin from 7 to 10 per cent The greatest increase in these readings is in the first few days It has also been shown that with every 100 mm of fall of atmospheric pressure there is an increased hemoglobin percentage of 10 per cent over that at the sea level[31]

Schneider and Havens[32] find that in low altitudes abdominal massage increases the red corpuscles, and the percentage of hemoglobin in the peripheral vessels While there is thus apparently a reserve of red corpuscles while the individual is in a low altitude, in a high altitude they find such reserve to be absent, in other words, abdominal massage did not cause this increase in red corpuscles in the peripheral vessels This absence of reserve is easily accounted for by the fact that after one reaches the high altitude there is an increase in red corpuscles and hemoblogin in the peripheral blood

Schneider and Hedblom[33] showed that the fall in systolic pressure at altitudes is greater and more certain than the fall in diastolic, some individuals even having a rise in diastolic pressure This rise in diastolic pressure is probably caused by dyspnea

Schrumpf,[34] on the other hand, finds that normal blood pressure is not much affected by an ascent of about 6,500 feet, while patients with arteriosclerosis and hypertension, without kidney disease, have a fall in pressure A patient with coronary disease should certainly not go to any great altitude, while patients with compensated valvular lesions, he found, were not injured by ordinary heights He found that altitude seemed to decrease high systolic and diastolic pressures, while it even elevated those which were below normal, and caused these patients to feel better

Any person who has a circulatory disturbance, and who must or does go to a higher altitude, should rest for a series of days, until his blood pressure and blood have reached an equilibrium

Smith[35] made a series of observations on blood pressures at Fort Stanton, which has an altitude of 6,230 feet He took the blood pressure readings in fifty-four young adults, seventeen of whom were women, and found that the average systolic reading in the men was 129 mm, and in the women 121, while the average diastolic in the men was 84, and in the women 82 Therefore he agrees with Schrumpf that the effect of altitude on normal blood pressure has been overestimated In tuberculosis he found that the effect of altitude was not great He does not believe that this amount of altitude, namely, a little more than 6,000 feet, makes much difference in an ordinary tuberculous patient He did not find that artificial pneumothorax made any important change in the blood pressure His findings do not quite agree with Peters and Bullock,[36] who studied 600 cases of tuberculosis at an altitude of 6,000 feet, and found the blood pressure was increased, both in normal and in consumptive individuals They also found that the increase in blood pressure, which kept gradually rising up to a certain limit, was indicative that the tuberculous patient was not much toxic, therefore the increase in blood pressure was of good prognosis

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[30] Burker, K Jooss E Moll, E, and Neumann, E Ztschr f Biol, 1913, lxi, 379 The Influence of Altitude on the Blood, editorial The Journal A M A Nov 1 1913, p 1634

[31] Blood and Respiration at Moderate Altitudes, editorial The Journal A M A, Feb 20 1915, p 670

[32] Schneider and Havens Am Jour Physiol, March, 1915

[33] Schneider and Hedblom Am Jour Physiol, November, 1908

[34] Schrumpf Deutsch Arch f klin Med 1914 cxiii 466

[35] Smith F C The Effect of Altitude on Blood Pressure The Journal A M A May 29, 1915, p 1812

CONDITIONS CAUSING CHANGE IN BLOOD PRESSURE

Woolley[37] quotes Starling as finding that the blood vessels dilate from physical and chemical changes in the musculature, and that this dilatation is caused by deficient oxidation and accumulation of the products of metabolism, including carbon dioxid This dilatation ordinarily is transient and not associated with exudation, but in inflammation the dilatation is persistent and there is exudation The carbon dioxid increase during exercise stimulates a greater circulation of oxygen in the tissues which later counteracts the normal increase in acid products In inflammatory processes, however, the acid accumulates too rapidly to allow of saturation In this case the circulation becomes slowed and the cells become affected

Besides these changes in the blood vessels of the muscles, the general blood pressure becomes raised on exercise, the heart more rapid and the temperature somewhat elevated, and the breathing is increased This increased heart rate does not stop immediately on cessation of the exercise, but persists for a longer or shorter time The better trained the individual, the sooner the speed of the heart becomes normal

Benedict and Cathcart[38] have found that the increased absorption of oxygen, showing increased metabolism, persists after exercise as long as the heart action is increased

Newburgh and Lawrence[39] have found that increased temperature in animals, equal to that occurring in persons suffering with infection, reduces the blood pressure, causing a hypotension This shows that high temperature alone in an individual sooner or later causes hypotension

Although prolonged pain may cause a fall of blood pressure from shock, the first acute pain may cause a rise in blood pressure, and Curschmann[40] found that the blood pressure was high in the gastro-intestinal crises of tabes and in colic, and that the application of faradic electricity to the thigh could raise the blood pressure from 8 to 10 mm in normal individuals

The positive effect of decomposition products in the intestine, more especially such as come from meat proteins, is well recognized, but the importance, in high pressure cases, of the absorption of toxins derived from imperfectly digested food remaining in the bowels over night is not sufficiently recognized Patients with high blood pressure should not eat a heavy evening meal, and especially should they not eat meat Willson[41] well describes the condition caused by the absorption of these toxins If the heart muscle is intact, he finds such absorption in high pressure cases will show diastolic as well as systolic increase

> The vessels pulsate and throb, the skin is pale, the head aches, the tongue is coated, the breath is foul, vertigo is often distressing, and not infrequently the hands and feet feel distended and swollen A thorough house-cleaning of the gastro-intestinal canal causes the expulsion of the offending substances and the expulsion of gas, whereupon the blood pressure often resumes its normal level and the symptoms disappear

Wilson suggests that not only the meat proteins, but also the oxyphenylethylamin in overripe cheese may often cause this poisoning, and cheese is frequently eaten by these people at bedtime Of course if any particular fruit or article of food causes intestinal upset in a given individual, they should be avoided

When the heart is hypertrophied in disease, the cavities of the ventricles are probably also generally enlarged, and therefore they propel more blood at each contraction than in normal persons and thus increase the blood pressure

The blood pressure is raised not only by intestinal toxemia and uremia, but also by lead poisoning and the conditions generally present in gout

It has been pointed out by Daland[42] that nervous exhaustion may raise the blood pressure in those who are neurotic, and he finds that this hypertension may exist for months in some cases On the other hand, in neurasthenics the blood pressure is generally lowered As he points out, there is often a very great increase in the systolic blood pressure at the menopause, while the diastolic pressure may not be high This makes a very large pressure pulse This suggests the possibility of disturbances of the glands of internal secretion This hypertension is generally improved under proper treatment

Schwarzmann[43] studied the blood pressure in eighty cases of acute infection, and found that a high diastolic blood pressure during such illness indicates a tendency to paralysis of the abdominal vessels, and hence a sluggish circulation in the vessels of the abdomen He found that in seriously ill patients this high diastolic pressure is of bad prognosis He also found that a lower systolic pressure with a lower diastolic pressure is not a sign that the heart is weakening, but only that the visceral tone is growing less On the other hand, when the diastolic pressure rises while the systolic falls, this is a sign of failing heart

Newburgh and Minot[44] find that the blood pressure course in pneumonia does not suggest that there is a failure of the vasomotor center They found that "low systolic pressures are not invariably of evil omen" They also found that the systolic pressure in fatal cases is often higher than in those in which the patients recovered, and they found that the rate of the pulse is more important in determining the treatment than the blood pressure measurements

The work which has been described under this section is of interest as indicating the newer experimental work on the physiology of blood pressure Much of it is new, however, and it is difficult to draw absolute therapeutic conclusions from the evidence offered

(To be continued)

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[36] Peters L S and Bullock E S Blood Pressure Studies in Tuberculosis at a High Altitude Arch Int. Med October 1913 p 456

[37] Woolley P G Factors Governing Vascular Dilatation and Slowing of the Blood Stream in Inflammation The Journal A M A Dec 26 1914 p 2279

[38] Benedict and Cathcart Pub 77, Carnegie Institute of Washington

[39] Newburgh L H and [illegible] C H The Effect of Heat on Blood Pressure Arch Int [illegible] February 1914 p 287

[40] Curschmann München med Wchnschr Oct 15, 1907

[41] Willson R N The Decomposition Food Products as Cardiovascular Products The Journal A M A, Sept 25 1915, p 1077

[42] Daland Pennsylvania Med Jour July 1913

[43] Schwarzmann Zentralbl f inn Med Aug 1 1914

[44] Newburgh L H and Minot G R The Blood Pressure in Pneumonia Arch Int Med July 1914 p 48

THE JOURNAL OF THE
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SATURDAY, AUGUST 12, 1916

A CHAPTER IN THE HISTORY OF THE NERVOUS SYSTEM

Abraham Jacobi has remarked that in America the history of medicine is almost never taught, and that as long as our universities do not teach it, the pupils feel encouraged to neglect it Many reasons might be urged for the study of the history of science It gives some idea of how men who have accomplished things have lived and thought and worked It furnishes a perspective view of the way in which the medical disciplines, like others, have come into their present form The continuity of development in science is brought to light A medical historian has intimated that the history of medicine furnishes valuable and fruitful lessons of what not to do — lessons often neglected so that the same gross errors have been repeated over and over Clifford once remarked that scientific thought is human progress itself, and few experiences can furnish a more wholesome reminder of the limitations of human knowledge and, above all, of the importance of rejecting superstition and maintaining the open mind, than the stories of the development of scientific truth There is a tendency even among devotees of medicine to acquire an attitude of complacent belief in current doctrines and therapeutic procedures This never makes for advancement either in the science of medicine or in the arts of practice History serves to recall the need of the tolerant point of view and the willingness to listen to the new without preliminary bias

Langley has remarked that the death of a theory is often not due to its being definitely disproved, but to the general progress of scientific knowledge which robs it of its credibility, it was in this way that the theory of "animal spirits" died He has recently prepared a sketch of the progress of discovery in the eighteenth century as regards certain portions of the nervous system[1] Great are the changes that have occurred in the intervening years! We are taken back to the days two hundred years ago when it was the current belief that all the nerves of the body had their origin in the brain and that the brain was the sole source of nervous influence There had already been a theory of the nature of nerve influence which regarded the nerves as tense cords, and nervous influences were oscillations or vibrations set up in them But the theory generally adopted and handed down to the eighteenth century physicians as to the nature of the nervous influences was that the brain concocted, or secreted from the blood, an attenuated "subtle" fluid which it forced down small tubes in the nerves, the tubes being too small to be visible The fluid was spoken of as "animal spirits" Earlier the term had meant the vapor or emanation of the "animus or rational soul", at this time animal spirits were simply the medium by which the mind and body influenced one another There was no sort of agreement, says Langley, as to the way in which the nerves caused motion, whether by the animal spirits setting up fermentation with something in the muscle fibers, or with something in the blood, or by the animal spirits flowing into the muscle and distending it, or in other ways

The new century led to progress with the abandonment of the older doctrines The nature of the nervous influence was now acknowledged to be unknown, but it had been suggested that it was of the nature of electricity, it was spoken of as nervous power or vis nervosa The peculiar functions of the sympathetic nervous system, and what has latterly been described as the autonomic or visceral system, began to be considered The latter means the nervous system of the glands and of the involuntary muscles, it governs the "organic" functions of the body In 1727 Petit contested the cerebral origin of the intercostal nerve — sometimes but not usually called the great sympathetic Before long it was maintained that this nerve sent fibers to the viscera, the glands and the blood vessels, and the viscera received nerves also from the vagus and from the sacral nerves The intercostal also sent fibers to the diaphragm, and by some it was held that the movement of the diaphragm in sleep and other similar involuntary motions were carried out by way of the intercostal nerve

For the most part nerves were supposed to run through the ganglia to their terminations, forming in them a special kind of nerve plexus, but some believed that a new organization occurred in the ganglia, and that new nerve fibers were sent off from them Except on anatomic grounds, there was no definite distinction between spinal and other ganglia In order to account for the absence of voluntary control over the viscera, and the absence of feeling in them normally, the theory had been put forward that the ganglia prevented nerve influence below a certain intensity from passing through the nerves The idea that the nervous ganglia were "small brains" dates from Winslow, 1732

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[1] Langley, J N Sketch of the Progress of Discovery in the Eighteenth Century as Regards the Autonomic Nervous System, Jour Physiol, 1916, L, 225 Most of the facts cited above regarding the history of the physiology of the nervous system are taken from this paper

Whytt, 1751, brought clinical experience largely to bear on the problems of the autonomic nervous system He used the more neutral term "nervous power or influence" for "animal spirits," and he stated definitely that it was prepared in the spinal marrow as well as in the brain He accounted for the different duration of life of different parts of the body, after removal from it, by differences in the constitution of the nerves, so that the nervous power contained in them lasted unequal times in different cases He considered that in normal life there was a constant flow of nervous power to the muscles and to the sphincters of the bladder or anus, keeping them in a constant state of tension

Haller, 1752, brought out the differences between the sensitiveness of the viscera on the one hand, and of the skin and muscles on the other In addition to these claims regarding sensibility, he formulated the theory that contraction could be brought about by stimuli without the intervention of nerves, or of any other intermediary agent It is interesting to note in passing that the effect of strong emotions and passions on the vital organs was considered by Johnstone, 1771, to be due to the impressions on the brain being much more violent than those set up by the will, and thus the nervous power was able to pass through the ganglia

Langley reminds us that at the end of the eighteenth century the theory that the brain was the ultimate source of nervous power was still held, and perhaps generally held, but it had received a considerable shock from further cases recorded a little after the middle of the century and at later times, of full term fetuses having apparently normal viscera, nerves and muscles, but having no brain

There were comparatively few new experiments contributed to physiology during the century under review The galvanic method of stimulation was still to make its great contribution in subsequent years and pave the way for the modern conceptions of the innervation of the viscera

THE SIGNIFICANCE OF AMMONIUM SALTS IN NUTRITION

Living objects are distinguished from the lifeless by the possession of certain properties which the latter lack Protoplasm, the physical basis of living things, may exhibit irritability, movement, growth and metabolism whether it be in the cells and structures of animals or in those of plants Living matter, Mathews writes, is a substance found in all living things, essentially the same in all, but differing somewhat in its physical appearance and chemical composition in each particular kind of cell The physical and psychologic complex of phenomena to which is given the collective name of "life" is associated always, so far as we know, with this substance, although each individual property may be independent of it With the development in biology of this somewhat unified point of view has come a natural tendency to observe the fundamental similarities between animals and plants Thus it has been remarked that the contrast which seemingly exists between these groups of living organs consists merely in the facts that in the animal organism the processes of oxidation and splitting are predominant, whereas in the plant chiefly those of reduction and synthesis have thus far been studied

Doubtless there is no extremely sharp boundary line between animals and plants, the differences being more of a quantitative than a qualitative kind It has presumably been under the influence of this idea that a number of present-day investigators have at various times begun studies of the value of nitrogen in the form of ammonia as a protein sparer or protein former in the animal organism In this country the problem has been attacked in particular by Underhill[1] at Yale University His work indicates that in any consideration of the influence of ammonium salts on intermediary metabolism a distinction must be recognized between ammonium salts of organic acids and those of inorganic nature The ability of the organism to dispose of these two types of salts is radically different All of the inorganic ammonium salts tested and some of those of organic nature cause a distinct excess of total nitrogen output over the normal These salts apparently stimulate nitrogenous catabolism In the case of salts like ammonium citrate or ammonium acetate, however, the nitrogen usually does not reappear as ammonia in the urine It may be converted into urea or may be temporarily retained in some form

These facts have lately been corroborated by Caldwell and Clotworthy[2] Thus they found, with respect to the manner in which the extra ammonia nitrogen taken with the food or injected into the body is excreted, that the mode of elimination depends on the ammonium salt employed, and apparently on the ions into which the ammonium salt is dissociated For instance, the added nitrogen in the case of ammonium acetate is excreted in the form of urea In the case of ammonium chlorid and ammonium phosphate, it is excreted both as urea and as ammonia The acetic acid derived from ammonium acetate is a much weaker acid than the hydrochloric acid, or the phosphoric acid derived from the ammonium chlorid and ammonium phosphate, respectively The body does not find it necessary to protect itself by the production of ammonia, to neutralize the acetic acid, but it is compelled to protect itself in the case of hydrochloric acid and phosphoric acid

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[1] Underhill F P Studies on the Metabolism of Ammonium Salts I The Elimination of Ingested Ammonium Salts in the Dog upon an Adequate Mixed Diet Jour Biol Chem 1913 xv 327 II A Note on the Elimination of Ingested Ammonium Salts During a Period of Prolonged Inanition ibid, p 337 Underhill F P and Goldschmidt, S III The Utilization of Ammonium Salts with a Non Nitrogenous Diet ibid p 341

[2] Caldwell W and Clotworthy H R S The Fate of Inorganic Nitrogen in the Metabolism of the Dog Biochem Jour 1916 x 14

Abderhalden,[3] who has found that ammonium salts, and especially ammonium acetate, can influence at times the nitrogen balance in the sense of a retention, now contends that there are no grounds, from the results which he has obtained, for the assumption that protein can be formed, as it is in plants, from ammonia and nitrogen-free compounds, such as carbohydrates and fats We can readily agree, therefore, in the conclusion of the most recent investigators that the analogy between the plant cell and the animal cell does not seem to hold in respect to nitrogen, for while syntheses are not denied to the animal cell, it has not yet been shown that the latter is able to manufacture complex organic substances from very simple inorganic constituents Limitations are thus set by Nature to any extreme program of simplified nutrition

ENDEMIC GOITER

The causation of endemic goiter has furnished a topic of engrossing interest which gains prominence in the United States as newer areas of the noticeable distribution of this disease are being brought to the attention of students of the medical sciences At one time considerable credence was given to the assumed correlation between the geologic formation of certain regions and the incidence of thyroid growths The strata were believed to contain and yield to the waters issuing from them undefined substances that are noxious in the sense of inducing thyroid hyperplasia Although this broader contention, supported by the assertions of the Birchers, has been quite generally abandoned, the possibility of some etiologic connection between potable waters and endemic goiter has continued to clamor for recognition up to the present day If water is not the vehicle for a defined chemical substance, it may conceivably be a carrier of biologic agencies, such as organisms responsible for specific diseased conditions It has been a decided advantage for the investigations in this domain that some of the lower animals, notably the rat, have shown themselves suitable for the development of typical thyroid overgrowth, and consequently available for the investigation of its incidence on a large scale under carefully controlled experimental conditions The discovery of characteristic thyroid hyperplasia in fishes has likewise served to ventilate the question as to whether this apparently endemic phenomenon is due to dietary and environmental factors or to infectious agencies Both views have been supported in this country

The most recent elaborate inquiry into the origin of endemic goiter conducted at the Hygienic Institute of the University of Zurich in Switzerland, a country notable for the frequency of this thyroid disease, affords some new facts which must be reckoned with in the future studies of the subject Hirschfeld and Klinger[1] have found that rats kept in regions in which goiter is endemic develop thyroid hyperplasia This outcome is without any apparent relation to geologic factors or the sources of the supply of drinking water In a goiter-free region these hyperplasias were not developed in animals from the same original stock Furthermore, a transfer of goitered rats to these regions of immunity gradually brought about a complete return of the involved glands to the normal Here, then, was an experimental opportunity to study the control and origin of the disease

The possible rôle of drinking water naturally elicited early attention These most recent Swiss investigators have found that the cause of the endemic goiter cannot be attributed to any agency, either a dissolved substance or an organism, which is found in the water exclusively, for in the goiter region goiter developed in rats which received distilled and sterilized water to drink, while in the goiter-free regions the supply of water obtained from regions where goiter is endemic failed to provoke any hyperplasia whatever It may be recalled that this finding is not in accord with the reports of several investigators who have seen goiter develop when water from an involved region was supplied Hirschfeld and Klinger point out, however, that if suitable control experiments are undertaken under these conditions, goiter may appear independently of the character or source of the drinking water It is the region or locality factor rather than the water offered that determines the outcome They propose, therefore, to abandon the long cherished idea of the existence of a specific *kropfwasser*—a goiter-producing water

Nor is the evidence more convincing for the theory of either the contagious or infectious character of endemic goiter — a hypothesis which also might easily be reconciled with the experience of localized incidence of the disease Contact and common surroundings with goiter-bearing animals and nests transported from goiter regions did not increase the appearance of goiter in the unaffected localities The views championed by McCarrison,[2] particularly with reference to the existence of intestinal etiologic factors, likewise failed of support in the Swiss experiments On the other hand, the possibility of a microbiotic origin of goiter cannot be said to be absolutely excluded at the present time

Hirschfeld and Klinger[1] submit that endemic goiter need not be regarded solely as the expression of an intoxication of chemical or infectious nature, which has hitherto been customary, but prefer tentatively to look on the disease as due to a pathologic condition of metabolism of as yet unknown character In view of the peculiar distribution of the malady, the well defined circumscribed nature of the defect, and the possibility of producing the disease experimentally in the ways cited, they regard it as not unlikely that a specific etiologic factor is at work Yet it is by no means excluded that the goiter is the outcome of a cooperation of a number of independent disturbances which attain more than a fortuitous coincidence in certain regions A way to test these views experimentally appears to be available

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[3] Abderhalden, E, and Hirsch, P Fortgesetzte Untersuchungen uber die synthetischen Fahigkeiten der tierischen Zelle, Versuche über die Verwertung verschiedener Stickstoffquellen im Organismus des Hundes, Ztschr f physiol Chem, 1913, lxxxii 1

[1] Hirschfeld, L, and Klinger, R Experimentelle Untersuchungen über den endemischen Kropf, Arch f Hyg 1916 lxxxv, 139

[2] McCarrison The Etiology of Endemic Goiter London 1913 Endemic Goiter, editorial, The Journal A M A, March 8, 1913 p 751 Endemic Goiter and Radio Activity June 7 1913 p 1798, Revision of Hypotheses Regarding Endemic Goiter, Feb 14, 1914, p 536

FOOD ABUSES IN WAR TIMES

In referring to the fact that the annual consumption of sucrose has reached over 85 pounds per capita in the United States, a quantity equivalent to 2,000 calories daily for a family of five, we recently quoted the following significant remark by Lusk This quantity of sugar costs the nation a million and a half dollars daily, and the rich harvest to be reaped by the replacement of only a part of this by saccharin, which has no fuel value whatever, is obvious [1]

Recently the interesting report of Dr A E Taylor on the conditions of diet and nutrition in the camp maintained for interned British civilians at Ruhleben, Germany, was reviewed as an indication of how the food problem of a country left largely to its limited natural resources was being met [2] A subsequent report by the same American investigator[3] indicates a more serious situation from the standpoint of the possible adequacy of the ration, the diets furnished now being essentially fat-free Fish and margarin have been withdrawn Diplomatic complications have arisen to make a scientific discussion of the problem of the nutritional needs of the interned civilians impossible at present

One fact, however, which is quoted on the authority of Taylor's report to Ambassador Gerard, is as significant as it will be surprising In the absence of vegetables one week, rhubarb was served once No sugar was furnished with it, but instead, according to Dr Taylor's report, instructions were given to the kitchen men to employ saccharin for sweetening, and this was supplied for the purpose The camp as a unit protested to the kitchen against the peculiar aftertaste that followed the eating of the rhubarb This might be expected if the dosage was not regulated with intelligent oversight and experience Prior to the war the use of saccharin in foodstuffs was absolutely prohibited in Germany In view of current tendencies in the United States, too much emphasis cannot be given to Taylor's advice in his governmental report He says "It is a truism in modern food laws the world over that the consumer should never be subjected to sophistication or substitution without his knowledge and consent If the authorities in Ruhleben are not able to furnish sugar with such foods as are normally prepared with sugar, the correct procedure would be frankly to notify the men to this effect, offer the individual men saccharin for their use, if they choose to employ it, leave it to other men to furnish their own sugar if they wish, and not impose on 3,000 men an artificial sweetening agent without their knowledge or consent" These words express a sentiment which deserves widespread diffusion on this side of the Atlantic, where war does not excuse objectionable practices in the food industries

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[1] Lusk Graham Food Economics Jour Washington Acad Sc 1916 vi 393

[2] A Report on Nutrition in a German Internment Camp editorial The Journal A M A July 8 1916 p 125

[3] Further Correspondence Respecting the Conditions of Diet and Nutrition in the Internment Camp at Ruhleben presented to both Houses of Parliament London Miscellaneous No 21 1916

Current Comment

PERPETUATING PATENTS BY TRADE NAMES

The patent on aspirin[1] (acetylsalicylic acid), controlled by the Bayer Company, American representative of the Farbenfabriken of Elberfeld Company, will expire next year (1917) The Journal has previously stated that the grant of this patent was regrettable and worked injustice to American citizens It is unnecessary again to go into the grounds for this statement, neither in the Farbenfabriken's home country, Germany, nor in any other country except in the United States, has a patent been granted for this product Owing to their monopoly, the manufacturers have been able to exact a much higher price for acetylsalicylic acid, or aspirin, in this country, than elsewhere Naturally, the Bayer Company, the American agents, view with disfavor the prospect of being compelled to share this rich field with competitors The foregoing furnishes the answer to inquiries which have reached us from all over the country with regard to the campaign of publicity which the Bayer Company has inaugurated in the lay press A presumably authentic and apparently candid exposition of the methods used and the motives behind the aspirin advertising is furnished in *Printers' Ink* [2]

> "The manufacturers of aspirin are about to launch an extensive advertising campaign to clinch the market as far as possible before the expiration of their patent rights next year The purpose of the campaign is to identify the product with the trademark of the Bayer Company and to this extent hamper competition after the expiration of the patent '

The business of the Bayer Company, the article goes on to say, has been hurt by the sale of worthless or even harmful imitations put on the market by irresponsible and unauthorized persons when the present war stopped importations from Germany

> "The public knew aspirin, *but did not know who made it* [italics ours] When the Bayer Company, Inc, took

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[1] Granted Feb 27 1900

[2] Printers Ink June 29 1916 p 189 July 13 1916 p 100

over the manufacture of aspirin in this country, the first steps were taken to identify the product with the firm who made it Of course, there are good reasons why the makers were loth to advertise the product or to exploit their trademark As every one knows, the advertising of a medical proposition is an extremely ticklish subject It is easy to make a misstep Aspirin is one of those proprietary rugs that are extensively prescribed by physicians If anything were done that might possibly associate this drug with the patent medicines that are in disfavor with the profession, the valuable influence and cooperation of thousands of doctors might be lost It is believed that this knotty phase of the question is being answered in the present advertising Since nothing is mentioned about 'medicine,' 'cures' or 'ailments,' it is anticipated that there will be but little objection to the copy All that the advertising attempts to do is to link up the name 'Bayer' with aspirin The nearest the copy gets to medical talk is in this sentence in very small type at the bottom of the advertisement, 'The trade-mark "Aspirin" (Reg U S Patent Office) is a guarantee that the monoacetic acid ester of salicylic acid in these tablets is of the reliable Bayer manufacture'"

From this it appears that, not content with seventeen years of monopoly, the aspirin people are attempting to retain a hold on the market *in perpetuo* by associating the name of the company with the trade name "aspirin" There can be no better time than the present, therefore, for the medical profession to substitute, for the nondescriptive name "aspirin," the descriptive and correct name acetylsalicylic acid

MIRACLES IN THE WAR ZONE

The *Outlook* publishes, in a recent issue,[1] the "War Letters of an American Woman" The writer describes the results of a treatment of burns which she witnessed at a Paris hospital, and admits at the outset that she finds it hard to write collectedly on the subject She was evidently in the proper condition — "sensitive" is, we believe, the technical term — to show high receptivity for the miraculous The tar, which had been sprayed on the soldiers by the enemy, long miles away at the front, was still burning, she says, when they reached the hospital in Paris Such a beginning leads the reader to anticipate something sensational, he is not disappointed Enough miracles are related to make fortunes for half a dozen shrines and to justify a carload of relics "And do you know, will you believe," she writes, "that very man — that apparent wreck, every feature of whose face was then indistinguishable, eyes closed, *lips and parts of his face burned to the bone,* teeth all exposed like a grinning mask, ten days after the deep wounds are filled up, the flesh fast healing over with new skin, that there will not be, within another week, *even a scar?*" At the risk of being discourteous, the physician will answer this question in the negative These marvels are credited to a dressing,[2] a proprietary product which has been for more than a dozen years on the French market and which has been also exploited here Though this product is in composition intermediate between paraffin cerate and resin cerate, it sells, under its proprietary name, at $4 a pound The correspondent of the *Outlook* draws a touching picture of the discoverer The researches which culminated in this discovery have left him prematurely old and broken in fortune "He deserves the recognition and the thanks due to a great benefactor of the human race But he doesn't ask it He is the most modest of men" Alas! That such modesty should not be allowed to blush unseen Not only does "An American Woman" indiscreetly publish his name and address, but the American agents for this remedy, in their ruthless rapacity and sordid commercialism, ride roughshod over his modesty and for years have been freely using his name in their advertising literature The greatest miracle is that, by the instrumentality of a credulous and uncritical lay writer, the esteemed *Outlook* has been ambushed into spreading a gratuitous advertisement over two of its most valuable pages

EFFICIENCY EXPERTS, SOCIOLOGISTS AND DOCTORS

The efficiency expert was investigating the hospital He reached a twenty-bed ward just at the luncheon hour Twenty well filled trays were placed before the patients Six trays, untouched, were removed thirty-five minutes later "Absolute waste," said the efficiency expert "Find out which patients want something and send up trays only for those that are hungry" "But a well filled, beautiful tray will sometimes create an appetite," said the physician "Oh!" said the efficiency expert The lady sociologist had carefully thought over the matter of birth control and obstetrics and sat down to write out her thesis

> Medical men have done much to help population (and at the same time to increase obstetrical practice!) by inventing bugaboos For example, it is frequently stated by medical men and is quite generally believed by women, that if a first childbirth is delayed until the age of thirty years the pains and dangers of the process will be gravely increased, and that therefore women will find it advantageous to begin bearing children early in life
>
> One also reads that women who bear children live longer on the average than those who do not, which is taken to mean that child bearing has a favorable influence on longevity
>
> A third bugaboo is that if a child is reared alone, without brothers and sisters, he will grow up selfish, egotistic, and an undesirable citizen Figures are, however, so far lacking to show the disastrous consequences of being an only child

"Well," said the physician, "the lady is clearly in error For example—" But what's the use! "Shoemaker," said Aesop, "stick to your last"

THE ARTIFICIAL PURIFICATION OF OYSTERS

The biologic conditions most favorable for the production of high class oysters are too frequently associated with those which tend to produce pollution This circumstance has caused disease from the consumption of contaminated oysters Three radical remedies which have been suggested for this danger are alteration of sewage disposal outfalls, removal of the beds, and prohibition of the fishing of oysters in polluted areas In many cases, for economic reasons, none of these remedies are available It has been found that if contaminated oysters are placed in unpolluted tidal or stream water they will purify themselves in a very short time In the summer months, only a few hours are required, and in the hibernating period, a few days This method has been put into practice in Europe, but two factors militate against its universal application The people of the United States are accustomed to purchasing oysters of a good quality at a low price The cost of this operation would be prohibitive Moreover, it would rarely be possible, in the immediate neighborhood of the oyster beds, to find unpolluted water areas for purification purposes with a saline content similar to that of the waters in which the oysters have been grown These facts have stimulated the search for other methods of purification Mr W F Wells,[1] sanitary chemist in the United States Public Health Service, has obtained entirely satisfactory results by the use of small quantities of bleaching powder He places oysters in basins or floats containing a suitable quantity of water, and then treats them with two doses of a suspension of calcium hypochlorite The second dose is given after six hours In each case a quantity of bleaching powder is used which gives 1 part of available chlorin in 4,000,000 parts of water The experiments are believed to prove that in this simple and inexpensive manner, oysters which have lain in polluted water can be purified to such a degree as to pass the most rigid standard, without in any way interfering with the normal life of the oyster, or producing any appreciable difference in flavor

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[1] The Outlook, Aug 2, 1916, p 794
[2] See Ambrine, Queries and Minor Notes, this issue, p 535

FOREIGN CORRESPONDENCE

On various occasions, letters have appeared in our Knocks and Boosts department which indicated that some of our readers regarded THE JOURNAL as unneutral According to some of the writers, THE JOURNAL was biased in favor of the Allies, according to others, in favor of the Central powers Among the reasons mentioned for these views were that (1) THE JOURNAL placed the London letter before the Berlin letter, (2) the Berlin letter appeared before the London letter, (3) some sentence in an editorial, in a news item, or even in an original article had favored one side or the other Now THE JOURNAL is unneutral because it is publishing letters from Paris and London, but not from Berlin or Vienna One subscriber has discontinued his subscription for this reason While THE JOURNAL regrets losing a subscriber, it regrets still more that it cannot get the letters Our occasional correspondent at Budapest, from last accounts, was a prisoner in Russia Our Vienna correspondent, when last heard from, was working in a base hospital at the front We have just had word from our Berlin correspondent that he stopped sending letters because, among other reasons, he was not getting THE JOURNAL and had not received the remittances which had been sent him, therefore concluding that his communications were not getting through We expect, however, to have his regular letters soon Incidentally, it will be noticed that no German or Austrian journal has been listed recently in our Current Medical Literature department This, of course, is because none has been received the date of the last Berlin journal that reached us is April 17, and of the last Vienna journal, March 9

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[1] Wells W F Artificial Purification of Oysters Pub Health Rep July 14 1916

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS EDUCATION, PUBLIC HEALTH ETC)

CALIFORNIA

Quarantine Against Poliomyelitis—The state board of health on July 10, established a state quarantine against infantile paralysis and detailed six inspectors to board and inspect all overland trains before entering the state

Fight Against Rabies Expensive—During the fight which California has been making against the spread of rabies, 7 162 coyotes were killed, as well as many other rabies-carrying animals, and the cost of the campaign was $10,500

Personal—Dr Lorne B Graham, San Francisco, has returned after two years' service in hospitals in London, in Red Cross work, on convoy ships in the Mediterranean, and finally on duty with a Canadian regiment at the front——Dr Charles W Girdlestone has been elected city health officer of Riverside succeeding Dr George E Tucker, resigned

ILLINOIS

Personal—Dr J Howard Beard, Urbana, has been appointed health officer of the University of Illinois——Dr Harry W Ackemann Rockford, Captain, M C, Ill N G, assigned Third Illinois Infantry, has been obliged to return from the southern frontier on account of illness

New Rules for Healers—New rules governing the examination for practitioners other than licensed physicians" go into effect September 1 The new rules for these "other practitioners" require a high school training and four full years of technical work for full credit on the point of education preparation There are at present about 1,800 "other practitioners" licensed in Illinois

Anterior Poliomyelitis—The State Board of Health has issued a pamphlet, brief and clearly expressed, giving information and advice regarding acute anterior poliomyelitis, together with an abstract of the rules and regulations of the board regarding the disease Copies of this pamphlet may be obtained on application to Dr C St Clair Drake, executive officer of the State Board of Health, Springfield

Cattle Quarantine Removed—On July 21, the secretary of agriculture ordered release from tuberculosis cattle quarantine for Lake, McHenry, Kane, Dupage and Cook counties, effective August 1 The quarantine has been in force since October, 1914——The State of Illinois, on August 5, became officially free from foot and mouth disease and on that day the last quarantined farm in Christian County was released from restrictions

Chicago

The Aid of Morons—At a conference between Judge Scully, the county commissioner, and the members of the State Board of Administration July 27, it was voted to place under the charge of Dr Harold D Singer and assistants, the Psychopathic Hospital, at the disposal of the state for experimental work——The establishment of a farm colony for morons and feebleminded, and for the arrest and cure of all drug addicts, were also recommended by the conference

Personal—Dr Norman MacL Harris of the University of Chicago, has been made captain in the Canadian Army Medical Corps——Dr Nathan S Davis, III, has been commissioned first lieutenant Medical Corps, and assigned to Battery C, First Illinois Artillery——Dr and Mrs George P Marquis have started on a trip for Alaska——Dr Daniel F Hayes who has been at work for a year in Etaples France with the Murphy unit, has returned——Dr Hubert

Dunn has reached Berlin and will join the staff of the Wisconsin Red Cross unit in Germany——Capt George L Lipshulch was appointed camp surgeon at Camp Dunne, Springfield, August 7, succeeding Lieut -Col Jacob Frank, mustered out of the federal service

Infantile Paralysis—Richard T Crane, in a telegram to Mayor Mitchell of New York, announces a gift of $25,000 to the individual who may offer the best cure for infantile paralysis, or the best solution to that problem, within a year——Health Commissioner Robertson has asked Mayor Thompson to allow a portion of the contingent campaign fund to be used to prevent the spread of infantile paralysis in Chicago, as the $5,000 provided by the City Council for that purpose will be exhausted this week Up to August 8, forty cases of infantile paralysis had been reported in Chicago One case is reported from Aurora and two new cases were reported from Evanston, August 7

INDIANA

Personal—Dr Warren D Calvin, Fort Wayne, has been commissioned first lieutenant, Medical Reserve Corps, and detailed on the examination of recruits

Work of State Charities Board—Reports show that the agents of the state board of charities made 1,204 calls, in the quarter ended July 31, on children over whom the board has supervision In the three months application was made for 150 children and 102 children were placed in homes One hundred and sixteen applications were investigated, twenty-five were rejected as unfit Fifty-six children were placed for the first time Fifteen children were returned to county support Forty-three visits to orphans' homes were made by the agents Fifty-six calls were made on county officials in regard to children's work One hundred and nine special investigations were made, 432 days were spent in the work and the cost to the state was $2,993 69 and to the counties for the children's traveling expense, $168 67

LOUISIANA

New Sanatorium Staff—Dr E M Ellis has taken over the Crowly sanatorium under a five year lease, and has associated with him Drs John W Faulk, Albin B Cross, Ralph B Roney and Mansseh S Hoffpauir

Increased Entrance Requirement—An official communication just received from the School of Medicine of the Tulane University of Louisiana states that after Jan 1, 1918, the entrance requirement of that institution will be two years of college work, which must include courses in physics, chemistry and biology, with laboratory work, and one year of French or German

New State Board Car—The new laboratory car of the state board of health is making its first tour of the state under the charge of Dr Oscar Dowling The car is completely equipped with all instruments necessary to bacteriologic work and carries a small automobile which is sent out as soon as the car reaches the station, to collect samples of milk and water for immediate analysis

Hospital News—The Great Southern Lumber Company, Bogalusa, has established an eight-room hospital to assist in the demonstration of the cause and cure of pellagra——Drs John A Hendricks and Thomas P Lloyd, both of Shreveport, and Henry J Parsons, Mansfield, have asked for bids for the erection of a four story, fireproof building for the Highland Sanitarium, Shreveport, to accommodate about sixty patients and to cost about $80,000

Personal—Dr Stephen W Stafford has been elected superintendent of the New Orleans Charity Hospital——Dr G C Chandler has been reelected president of the Shreveport Board of Health and local health officer——Dr Joseph J Holt has been reelected president of the New Orleans Parking Commission——Dr Gustavus Mann, New Orleans, has been appointed consulting chemist for the Freeport Oil Company of Texas with headquarters at Huston——Dr Thomas A Roy, Avoyelles, has been reappointed a member of the state board of health

MARYLAND

Infantile Paralysis—The second death in Baltimore from infantile paralysis occurred August 4 at the Harriet Lane Home, Johns Hopkins Hospital——Three suspects have been reported to the department, but none of these is said to have infantile paralysis——A positive case has been reported to the State Board of Health from Salisbury——A child living in Hampton is suspected of having infantile paralysis——A suspected case is reported at Lansdowne Baltimore County——The health commissioner is having all children arriving from New York, met at the station by health wardens and the homes of these children are inspected at intervals during the two weeks following their arrival in Baltimore

Personal—Dr James J Mills, instructor of ophthalmology at Johns Hopkins Medical School, sailed August 6 on the *Rochambeau* for Bordeaux, France He has been engaged by the chief physician of the town of Biarritz to assist in the treatment of injuries to the eyes of the soldiers and expects to return in September——Dr William H Welch sailed from New York August 6 for England to study institutions from which he may get ideas for the organization of the Rockefeller School of Hygiene and Public Health, which will be established in Baltimore Dr Welch will also study the manner in which England has been organized in scientific and other lines for the war, as head of the National Academy of Sciences He will be accompanied by Dr George Ellery Kale, chairman of the organization committee of the academy

MASSACHUSETTS

Infantile Paralysis—There have been seventy-one cases of infantile paralysis reported in Massachusetts since July 1. Of these, eight have occurred in Westfield

Personal—Dr John G Perman, Worcester, has been appointed trustee of the Worcester State Hospital——Dr. Sarah E Coppinger, Boston, has resigned as a trustee of the Foxboro State Hospital——Dr Arthur P Noyes has been appointed senior assistant physician at the Psychopathic Hospital, succeeding Dr George E McPherson, resigned——Dr Douglas A Thom, assistant physician and pathologist at the Monson State Hospital, has been appointed assistant pathologist to the State Board of Insanity with headquarters at the Summer Street Department of the Grafton State Hospital, Worcester——Dr Emily A Pratt of the Henry Haywood Memorial Hospital, Gardner, has been appointed assistant physician at the State Infirmary, succeeding Dr Hattie E Chalmers, resigned——Dr Arthur E Timme has completed a four months' course of training at the Psychopathic Hospital——Dr A Louis Gramsch, Lowell, has been appointed lieutenant, Medical Corps, Massachusetts V M, and assigned to duty with Field Ambulance No 2——Dr Charles D McCarthy, Jr, Malden, who has been ill with spinal meningitis in the American Hospital, Neuilly, France, is reported to be convalescent

MICHIGAN

Bounties for Rats—The county clerk of Branch County has issued orders for the payment of bounties for 5,000 rats killed since Sept 1, 1914

Site for Tuberculosis Hospital—A site has been selected for the new Keweenaw County Tuberculosis Sanatorium overlooking Lake Superior, east of Eagle River Falls Plans are being considered for the erection of a building to accommodate at first from ten to fifteen patients

Tuberculosis Survey—The tuberculosis survey of Dickinson County commenced, July 31, and the party is in charge of Dr William DeKleine, director of the survey, assisted by physicians and visiting nurses——The survey in Ontonagon County commenced, July 10, and in Gogebic County, July 17

State Society Meeting—The annual convention of the Michigan State Medical Association will be held in Houghton, August 15 to 17, under the presidency of Dr Alfred W Hornbogen, Marquette——The Upper Peninsula Medical Society will hold its meeting with the state society, August 16

Tribute to Dr Jenks—Special resolutions were adopted by the faculty of the Detroit College of Medicine and Surgery, June 4, bearing tribute to the high respect in which the late Dr Nathan Jenks was held The resolutions were ordered to be spread on the minutes of the faculty and a copy was ordered to be sent to Dr Jenks' family

Asylum Boards Hold Conference—At the midsummer meeting of the joint board of trustees of the state hospitals held in Kalamazoo, July 18, Dr Adolph Meyer, psychiatrist-in-chief of Johns Hopkins Hospital, Baltimore, spoke on "The Extra-Institutional Responsibilities of State Hospitals for Mental Diseases", and George A Hastings, executive secretary of the Committee on Mental Hygiene, New York, spoke on "Meeting the Mentally Sick Half Way"

Personal—Dr Charles J Foley, Pontiac, has been appointed surgeon for the Michigan Workmen's Compensation Mutua

Insurance Company Detroit He has also been appointed a member of the visiting staff of the Harper Hospital ——Dr D Emmett Welsh has been appointed a member of the Grand Rapids Board of Health ——Dr Henry R Carstens Detroit, first lieutenant, M R C U S Army, has been ordered to duty at Columbus Barracks

MINNESOTA

Appropriation Against Poliomyelitis —An emergency fund of $5 000 for use in the prevention of the spread of infantile paralysis in Minnesota, was voted by the governor, state treasurer and state auditor, under the statute relating to public calamities There have been 102 cases of infantile paralysis reported in the state since July 19, and twenty five cases are under surveillance at present

Hospital News —It has become necessary to enlarge the accommodations of the Northwestern Hospital Moorhead A large nurses' home will be built on the ground just west of the hospital This building will also contain an obstetric ward, a Roentgen-ray laboratory and pathologic laboratory ——A new hospital will be erected on College and Summit avenues, St Paul between St Peter and Rice streets The site is 240 by 216 feet Mrs Martha A Miller, who died last year, left property worth about $1 000 000 and $400 000 in cash for a hospital for the poor of St Paul to be known as the Charles T Miller Hospital in memory of the husband of the testatrix.——Dr Bertram S Adams, Hibbing, is building a two story hospital building which will contain two wards and ten private rooms ——Dr Merton Field opened a hospital in the Bennett Block, St Peter, July 11

State Health Association.—At the annual meeting of the Minnesota Public Health Association held in St Paul, recently, the following officers were elected Dr Warren L Beebe, St. Paul, president, Dr John W Andrews, Mankato, and Mrs A L Robinson, Warren, vice presidents Governor J A A Burnquist and President George E Vincent of the University of Minnesota, honorary vice presidents, and Dr Edward L. Tuohy, Duluth, secretary Dr Ignatius J Murphy St. Paul, was continued as executive secretary, and Dr Paul B Cook, St. Paul, as treasurer The association is in need of a permanent field secretary and also of two field nurses who will devote their time to the organization of dispensaries in counties already equipped with tuberculosis sanatoriums, and to the demonstration of methods in which a nurse can assist in the control of tuberculosis in infant welfare work and in school supervision The association has commenced the publication of a monthly journal, the first issue of which appeared in July and contained the annual report Future issues will feature the topics of personal health, tuberculosis, teeth, tonsils and adenoids, hygiene of the home and community nursing

NEW JERSEY

Infantile Paralysis —On July 31, thirty-five new cases of infantile paralysis were reported for the state at large, and fifty-one new cases in Newark with four deaths

State Board Election —At the annual meeting of the State Board of Medical Examiners in Newark, July 15 the following officers were reelected president, Dr William Perry Watson, Jersey City, secretary, Dr Alexander MacAlister, Camden, and treasurer, Dr F Wilbur Cornwell, Plainfield

Personal —Dr Samuel D Bennett of Millville has been elected medical inspector of schools ——Dr J Lewis Lane, Tuckerton, has been appointed physician to the eight life-saving stations between Barnegat City and Little Beach ——At the annual meeting of the state department of health, July 11, William H Chew, Salem, was reelected president, and Dr Edward A Ayers, Branchville, was elected vice president, succeeding Moses M Baker, Montclair, term expired

Hospital Items —The commission named by Governor Fielder to relieve the overcrowded condition of the Morris Plains Hospital, has recommended the establishment of another institution for the insane instead of enlarging the Trenton State Hospital ——Essex County has decided to erect isolation shacks to care for patients suffering from infantile paralysis, and has also decided on the erection of a large, modern tuberculosis sanatorium The Newark Tuberculosis Sanatorium Verona, has offered to lease its property to Essex County with an option of purchase A shack 18 by 100 feet, with accommodations for fifty patients, it to be erected at a cost of $2,500 and a temporary building for a nurses home will also be put up at a cost of about $1,500

NEW YORK

Personal —Dr Bernard Glueck of Washington, D C, is cooperating in the establishment of the psychiatric clinic in Sing Sing Prison ——Dr Joseph Roby, Rochester, has returned after visits to military hospitals in France, Switzerland and Italy

Poliomyelitis Increases Throughout State —On August 4, a total of thirty cases of infantile paralysis were reported to the State Health Department, making a total of 575 cases in the state outside of New York City The total number of deaths in the state is fifty-three ——The military training camp to have been held at Peekskill for boys has been abandoned because of the epidemic A report came from Troy on the evening of August 4, stating that another death from infantile paralysis had occurred at Saratoga Springs ——The health supervisor of the Northern New York District states that investigation has proved, beyond a doubt, that the disease was being carried by milk Of six cases and three deaths all were on the same milk route ——Owing to the prevalence of infantile paralysis, strict quarantine regulations have been established on the Military Academy Reservation West Point, beginning August 1 ——The new cases of anterior poliomyelitis reported in greater New York, August 8 numbered 183, an increase of thirty-eight cases over the previous day and the highest number of cases recorded in any day since the beginning of the epidemic On August 8, there were fifty-two deaths and the total cases now number 5,366 with 1 194 deaths, a percentage of 22 25

New York City

Dental Lectures for Medical Students —In addition to the proposed dental school in connection with Columbia University a course of lectures on dentistry is planned for medical students These lectures aim to furnish the medical student with a knowledge of the fundamental principles in the proper care of the teeth, and will emphasize the close relationship between the diseases of the body and defective teeth The dental specialists who will deliver these lectures are Drs Leuman M Waugh, Arthur H Merritt, William B Dunning Harold S Vaughan and Henry S Dunning

Health Exhibit at Coney Island —A health exhibit for men only, designed to teach the important facts regarding venereal diseases is now being successfully operated at Coney Island The exhibit represents the cooperation of the New York Social Hygiene Society, the Brooklyn Hospital Dispensary, and the Department of Health, and is financed mainly by the first named organization Judging by the number of visitors, their demeanor the interest taken in the exhibit, and the questions asked, the enterprise is bound to exercise a wholesome educational effect After the close of the Coney Island season it is planned to show this exhibit in various parts of the city

Faculty Changes —The following appointments to the faculty of the University and Bellevue Hospital Medical College have been announced Dr Joseph B Bissell Dr Thomas A Smith, and Dr Arthur M Wright, clinical professors of surgery, Dr William C Lusk, professor of surgery, Dr W Howard Barber, chief of clinic, department of surgery, Dr George Francis Cahill, instructor in surgery, Dr Theodore J Abbott clinical professor of medicine, Dr Benjamin M Levine clinical professor of cancer research, Dr Charles Krumwiede, Jr assistant professor of bacteriology and hygiene, Miss Mary Smeeton instructor in bacteriology

Personal.—Dr Donald B Armstrong has resigned as director of the Department of Social Welfare of the New York Association for Improving the Condition of the Poor to become assistant secretary and director of the community tuberculosis experiment of the National Association for the Study and Prevention of Tuberculosis ——Dr Timothy D Lehane coroner's physician is seriously ill with septicemia due to a necropsy wound ——Dr Albert H Brundage Brooklyn, is under treatment in Johns Hopkins Hospital for pyloric stenosis following ulcer of the stomach

Conference on Poliomyelitis —The conference of pathologists which was suggested by Dr Haven Emerson took place at the College of Physicians and Surgeons on August 3 Dr Simon Flexner was chosen as chairman A committee was appointed to consider all the phases of laboratory investigation, to suggest subjects and in some instances lines of study in connection with the disease This committee consists of Dr Flexner, Prof Ludvig Hektoen University of Chicago, Prof Hans Zinsser College of Physicians and

Surgeons, New York, Prof Richard M Pearce, Jr, University of Pennsylvania, Prof James W Jobling, Vanderbilt University, Nashville, Tenn, Surg George W McCoy, U S P H S, director of the hygienic laboratory at Washington, and Dr Theobald Smith, Princeton, N J, of the ’ockefeller Institute Another committee was appointed to onsider practical measures that might apply in the suppression of the epidemic This committee consists of Dr Victor C Vaughan, University of Michigan, chairman, Prof Milton J Rosenau, Harvard, Boston, Dr William H Park, Department of Health, New York City, Dr Francis W Peabody, Boston, Dr John Howland, Johns Hopkins, Dr Augustus B Wadsworth, director of the State Laboratories, Albany, and Prof Charles C Bass, Tulane University, New Orleans The members of the conference were conducted through the infantile paralysis wards of the Willard Parker Hospital and were present at a clinic held there The research workers will carry with them cultures of the disease and will work out various lines of investigation in their own laboratories The report of the Conference was presented to Dr Haven Emerson on August 4 and lays stress on

1 The early recognition and notification of the disease, and
2 The immediate isolation of patients and cases of suspicious illness

Furthermore, on account of incomplete knowledge concerning the disease, measures known to be effective in checking the spread of other infections should be applied and these are, particularly, personal hygiene, cleanliness of person and surroundings, and care of food which should be thoroughly cooked

In order to secure the earliest possible recognition and notification of cases and their prompt isolation, we wish to direct particular attention to the appeals that have been made by the department to the physicians of the city and to the public generally that they cooperate with the department in all these measures

We strongly recommend that you inaugurate a house to house inspection of as large a part of the city as is practicable, twice a week, for the purpose of education and of securing the early recognition, notification, and isolation of the disease

We are of the opinion that satisfactory isolation is secured only in hospitals Moreover, not only is more thorough protection secured for the public by the hospitalization of patients, but it is also better for the individual patient

The special problems suggested for study are the following

1 Methods of culture of the virus of poliomyelitis, with especial reference to corroboration of previous work, to simplification of methods, and to the distribution of the virus in the body of patients
2 The immunologic reactions of patients, supposed carriers of the virus, and others
3 The virulence for animals, of the crude virus, in order to determine if possible whether there are any differences in the virus causing outbreaks in different parts of the country as well as to discover, perchance, more susceptible animals for experimental purposes than are now available
4 The microscopic study of the secretions of the nose and throat and of the intestinal contents of patients suffering from poliomyelitis, persons who have come in close contact with such patients, and others
5 The transmission of the disease by insects and domestic animals and other possible modes of transmission
6 The study of practical methods of disinfection

The Board of Estimate has appropriated $2,000 to defray the expenses of the conference ——The records of the Department of Health on August 4 show that there have been in all 4,674 cases of infantile paralysis in this city, with a total of 1,025 deaths Hospitals have cared for 2,399 cases The Health Department has issued, up to August 4, 53,691 health certificates to children under fifteen years of age leaving the city and has refused certificates to 256——The New York *American*, on August 5, started a fund for saving infants from anterior poliomyelitis Mr Hearst made the first subscription of $5,000 Thirty-five thousand dollars is needed for the work and the money will be used to establish a free dispensary which will provide treatment for about 1,000 children The medical work will be in the hands of a board of physicians and orthopedic surgeons

PENNSYLVANIA

Hospital Notes—The homestead of Daniel Boone in Exeter Township has been offered to Reading as the location for the proposed municipal hospital The tract contains 160 acres and is offered to the city for $10,000——Plans have been submitted and approved for the erection of a pavilion for consumptive children at the Leech farm near the Pittsburgh Municipal Tuberculosis Hospital The pavilion will accommodate twenty-four patients

Quarantine Against Infantile Paralysis—The following message was sent to the New York and New Jersey health commissioners, August 4, by Dr Samuel G Dixon, commissioner of health of Pennsylvania

> The Commonwealth of Pennsylvania this day placed quarantine against all children under 16 years of age coming from outside this Commonwealth who have had or have been in contact with infantile paralysis or who have been living in premises in which there is or has been a case of infantile paralysis during the present epidemic Other children less than 16 years of age from any stricken district will be held under observation
>
> SAMUEL G DIXON
> Commissioner of Health

Four new cases of the disease have been reported to the state department All boroughs and third class cities have been warned to make an immediate sanitary inspection of every property in the community, to have all human and animal waste and all garbage handled in such a way that will prevent the breeding of flies and other insects On July 29 medical officers of the state department of health served notice to parents of children on excursion trains to New York that children under 16 years of age would not be taken to that city

Philadelphia

Insane Patients Transferred—The transfer of twenty-four patients, of whom twenty-one were men from the insane department of the Philadelphia General Hospital to the state institution at Wernersville has slightly relieved the congested conditions at Blockley The patient's expenses will be paid equally by the city and state and they will remain until the new buildings for the city's insane at Byberry are finished

Meeting on Infantile Paralysis—A conference of physicians of the Philadelphia County Medical Society, the Pediatric Society, the Baby's Hospital, the Children's Hospital and the Babies' Welfare Association was held at the request of Dr Wilmer Krusen, director of Public Health and Charities, at city hall on August 4 Because of the many cases of the disease in the forty-third ward, which includes the Hunting Park Avenue district, Dr Krusen made an inspection of the entire ward and directed the chemist of the Bureau of Health to at once make laboratory tests (both chemical and bacteriologic) of the water in the three wells or springs of the Hunting Park Dr Samuel G Dixon, state health commissioner, will ask the railroad companies operating between this city and New York and New Jersey not to sell tickets to any place in this state to children under 16 years of age without certificates of their health A request will also be made to railroad companies of this city not to sell excursion tickets to points in New Jersey and New York to children under 16 years old The number of new cases in Philadelphia, according to report of August 5, was eight with one death A rigid inspection of every playground in the city has been started by the board of recreation to insure children against contagion Visiting nurses will daily attend those in the crowded sections, examining the children and separating those that need medical attention Sand piles will be closed for the present and wading pools will be strictly watched

TEXAS

Health Survey—An intensive campaign is being conducted in Wood County for the eradication of malaria and hookworm A similar health survey is soon to be commenced in Harris County, which has raised $2,400 for the purpose The work will be undertaken by the International Health Commission

Health Certificates Required—As the result of a conference held at Austin recently between State Health Officer William B Collins, quarantine officers along the border and railway surgeons, a ruling has been adopted requiring all persons applying for transportation from public carriers on the border, to present a state certificate from a quarantine officer as evidence that they are free from disease and can be transported from the railroad without jeopardizing the health of the people of Texas This has especial reference to the prevention of the introduction of typhus fever into the state from Mexico

County Society Entertains Medical Officers—An entertainment was given by the El Paso County Medical Society in the Elks Club, July 15, in honor of all officers of the Medical Corps of the army and organized militia on duty in El Paso The officers have already been given the freedom of the headquarters of the society, including the library Bexar County Medical Society entertained the medical officers on duty at San Antonio Addresses were made by Dr Jackson of San Antonio, Maj Henry D Thomason, M C, U S Army, and Maj Gustavus M Blech, commanding Second Illinois Field Hospital

WEST VIRGINIA

State Association Semicentennial—The West Virginia State Medical Association will celebrate its semicentennial in October, 1917, at Fairmont, where the organization had its beginning fifty years ago Dr James R Bloss, Huntington, was reelected editor of the state medical journal

Health Officers Meet—A conference of health officers of the state was held at Charleston July 25 on call of Dr Samuel L Jepson health commissioner Two sessions were held at each of which four papers on public health problems were presented The conference was attended by health officers from thirty-eight counties One of the most interesting papers was an illustrated talk by Surg John McMullen, U S P H S on 'Trachoma as a Public Health Problem" Dr Jepson delivered an address on 'The Value of Morbidity and Vital Statistics"

WISCONSIN

Personal—Dr Joseph A Rene, formerly of Superior, but for the last four years in charge of a hospital at Mazatlan, Mexico, has returned to the United States——Dr Sarah I Morris, Madison was the guest of honor at a luncheon given in Scranton, Pa, July 5

Hospital Notes—Representative men of Ladysmith met July 26 to discuss the plans to provide a modern hospital for the city It was decided to conduct a campaign to raise $50 000 for the erection and equipment of the hospital which is to be known as St. Mary's Hospital and will be conducted by the Sisters of the Servite Order

GENERAL

Hay-Fever Campaign—The United States Public Health Service, on July 24, inaugurated a campaign for the relief of sufferers from hay-fever The service will endeavor to have state legislatures enact laws to provide means for fighting weeds which are known to provoke the disease It is said that 2 per cent. of the people of the United States are sufferers from hay-fever

Appropriation for Consumptives—The Senate Public Health Committee, on July 28 voted to report favorably a proposed appropriation of $2,000 000 to be spent in the care of indigent sufferers from tuberculosis The object of the appropriation is to relieve the states of the care of invalids who leave their homes in search of health and then become charges on other communities

Bequests and Donations—The following bequests and donations have recently been announced

Children s Homeopathic Hospital and St Luke s Homeopathic Hospital Philadelphia each $2 000, by the will of Rachael L Jones

Presbyterian Hospital, New York City $19 285 New York Society for the Relief of the Ruptured and Crippled $5 000 by the will of Mrs Nellie M Noe

Columbia (S C) Hospital and Anna Jacques Hospital Newburyport Mass each $500 by the will of Miss Sarah E Stickney

May Fletcher Hospital Burlington Vt a donation of $20 000 by Ira C Calef Washington Vt.

Healin Hospital Montpelier Vt. a donation of $20 000 by Mrs Ira C Calef

Lowell (Mass) General Hospital a donation of $200 000 $130 000 of which is to be used to build and equip a new ward and the remainder $70 000 for an endowment fund by Frederick Fanning Ayer

Aid for Belgian Physicians—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, lists one contribution for the month of July, 1916

Dr Miles F Porter, Ft Wayne Ind (second contribution)		$ 5 00
Receipts for the month of July		$ 5 00
Previously reported receipts		7 941 86
Total receipts		$7 946 86
Previously reported disbursements		
1 625 standard boxes of food at $2 20	$3 575 00	
1 274 standard boxes of food at 2 30	2 930 20	
353 standard boxes of food at 2 28	804 84	
Total disbursements		7 310 04
Balance		$ 636 82

F F Simpson M D Treasurer
5 Jenkins Arcade Bldg Pittsburgh Pa

Oleo Interests not Responsible for Proposed Investigation of the Butter Industry—Representative Linthicum of Maryland in a recent speech denied that the oleomargarin interests were behind and actively supporting his charges against the sanitary character of the dairy products of the United States and his efforts to have the dairy industry investigated by a congressional committee He quoted Dr A D Melvin, chief of the Bureau of Animal Industry, Department of Agriculture, as expressing the belief that a large percentage of the dairy products consumed by the American people are unfit for food Dr E C Schroeder of the same bureau was quoted as saying that 2 million, or somewhat over 9 per cent of our dairy cows had tuberculosis and are capable of transmitting the disease to children and as estimating, on the basis of New York City's experience, that 6,000 children die every year in the United States from bovine tuberculosis

Nurses' Association Seeks Congressional Charter—The Senate Committee on the District of Columbia has reported favorably a bill to incorporate the American Nurses' Association as a body corporate in the District of Columbia (S 6667) The purpose of the organization is to promote the professional and educational advancement of nurses, to establish and maintain a code of ethics among nurses, to elevate the standard of nursing education, to distribute relief to such nurses as may become ill, disabled or destitute, to disseminate information on the subject of nursing, to bring into communication with one another various nurses, and associations and federations of nurses, throughout the United States, and to succeed to all the rights and property held by the American Nurses Association, now incorporated under the laws of the state of New York The principal office of the organization is to be in the city of Washington, but offices may be maintained and meetings may be held at such times and places as the association may designate The incorporators are Annie W Goodrich Adda Eldredge, Elsie M Lawler, Katherine De Wit, M Louise Rwiss, Helen B Criswell, S Lillian Clayton, Jane A. Delano, Mary M Riddle, Ella Phillips Crandall and Mathild Krueger

Study and Prevention of Infant Mortality—The seventh annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Milwaukee, October 19 to 21 under the presidency of Dr Samuel McC Hamill Philadelphia Dr William C Woodward, Washington D C, is president-elect, and Dr George C Ruhland health commissioner of Milwaukee, is chairman of the local committee on arrangements The work of the association will be conducted under the following sections obstetrics Dr Arthur B Emmons, II, Boston, chairman, propaganda, Mr George R. Bedinger, Detroit, chairman, pediatrics, Dr Borden S Veeder, St Louis, chairman, governmental activities and vital and social statistics, Dr William C Woodward, Washington, chairman, public school education for the prevention of infant mortality, Prof Abby L Marlatt, Madison, Wis, chairman, and rural communities and nursing and social work Dr Dorothy Reed Mendenhall, Madison Wis, chairman The session on pediatrics will be held as a joint session with the Milwaukee County Medical Society, the session on governmental activities will be held jointly with the Committee on Vital and Social Statistics, the session on rural communities will be held jointly with the Committee on Nursing and Social Work The subjects to be discussed include governmental activities—federal, state and municipal—in relation to infant welfare, care available for mothers and babies in rural communities, standards for infant welfare nursing, morbidity and mortality in infancy from measles and pertussis, public school education for the prevention of infant mortality, and vital and social statistics

United States Public Health Service Bill Favorably Reported—The Senate Committee on Public Health and National Quarantine has reported favorably the bill to promote the efficiency of the United States Public Health Service (H R 204) The bill has already passed the House of Representatives If enacted, this bill will limit the appointment of the surgeon-general of the Public Health Service to commissioned officers in the service, not lower in grade than surgeon, and require that the surgeon-general at the expiration of his four-year term of office be carried as an extra number in the grade of assistant surgeon-general, unless he be reappointed As an inducement to physicians to enter the service, the bill provides for the promotion of assistant surgeons to the next higher grade after three years' service, instead of after four years as at present The chiefs of the bureaus of zoology, pharmacology and chemistry in the Hygienic Laboratory, are to be commissioned by the president, by and with the advice and consent of the Senate, as professors of zoology, pharmacology and chemistry, respectively, and are to be entitled to leaves of absence as now provided by law for commissioned medical officers Provision is made for the appointment of five additional professors, qualified for special work in sanitary engineering epidemiology, pathology, anatomy, bacteriology, housing or other matters that relate to the propagation and spread of disease Men of this class, the committee s report says, often do not have medical degrees, and under the present system of commissioned service only doctors of medicine are provided for, and the bill will remove this defect and make places for men who are specially trained in these highly technical fields, but who are not graduates in medicine

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Dr Chambrelent, agrege
Faculte de medecine de Bo
Revue scientifique a statistical
examination of the last statistic
of labor and social welfare Cha
number of stillbirths constitutes
total annual mortality of France
births appears to be approximate [illegible]
children for 1,000 born alive, but this coefficient is seen to
undergo important modifications owing to different factors
Thus, if the population of France is divided into three cate-

ults, and (*b*) as a control of the effect of
ost incurred by the councils will be repaid
per cent by the Local Government Board,
th *the* recommendation of the royal com-
ouncil is required to prepare and submit to
nent Board a scheme (*a*) for the treat-
hospitals or other institutions of persons
enereal disease, and (*b*) for supplying physi-
rsan or its substitute for the treatment and
nereal disease The scheme would comprise
or the establishment of special clinics for the
ereal diseases at one or more hospitals which
serve the area of the council, and the pro-
nt treatment for those cases which require
ments will be made by agreement between
e hospital authorities, but it is considered
eatment at a particular institution should
those living within a certain area The
available for all comers, irrespective of
e or the means of the patient A further
al patients should be fully assured of the
ngements The regulations require that
ained in regard to any person treated
shall be regarded as confidential Under
may the names and addresses of patients
medical officers of *institutions* Similarly,
should not be specially designated as for
d nothing should be done to distinguish
end for treatment of these diseases
d by the government on the necessity of
peration of physicians in the *working* of the
nent, and of framing these schemes so as to
ty of physicians in treating venereal dis-
atient who attends at an institution is not
red to his own physician for treatment, in
he treatment provided at the institution,
o *refusal to treat him* at the institution
substitutes, is to be supplied gratuitously
sicians who are qualified to administer it,
mited to those physicians who are known
ence in the administration of these drugs,
ided for a sufficient time the practice of an
ch the drugs are regularly administered
be encouraged to avail themselves of the
at institutions for treatment, to attend the
se institutions, and to arrange for consul-
edical officers of the institutions
cular has been addressed by the Local
d to the governing bodies of general and
drawing attention to the importance of
being taken to extend the existing facilities
and treatment of venereal disease, and
the measures recommended by the royal
be successful without the active coopera-
hospitals of the country An assurance is
my council will, wherever possible, make
reby those officers of the army medical
es would be of special value for this work
devote part of their time to it, and it is
o interference with the administration of
ntemplated, and that no charge need fall
he hospital which provides the required
al commission drew special attention to
ublic knowledge of the grave evils which
f venereal disease, and the importance of
tional measures The Local Govern-
tions has conferred on the councils
uctional lectures and to publish
ing to venereal disease The
o form committees contain-
ncluding a sufficient num-
tatives of the local medi-
minating information
or the making of sug-

gases The second group includes cases of a general neurasthenic character, attributable to exhaustion of the nervous system resulting from *physical and nervous strain,* sleeplessness, fear, anxiety, and harassing sights and experiences The third group includes cases of mental breakdown, mental confusion, mania, melancholia and delusional psychoses At the commencement of the war the patients with nervous shock and neurasthenia were transferred from overseas with medical and surgical patients, and were treated in the general wards of the hospitals at which they arrived, while the patients with mental disorder were transferred to the established institutions at Netley for the treatment of mental patients in the service of the army

As the number of cases increased, a more elaborate organization became necessary The following is the present plan On arrival at one of the British base hospitals abroad, the soldier's condition is investigated by a special medical officer The patient then is sent to a section of a hospital according as his symptoms are of a neurologic or a mental character Should he be suffering from transitory mental symptoms which subside rapidly, he is transferred from the mental to the neurologic section as soon as it is advisable to do so For such cases special accommodation is provided so that the patient may be placed under the most suitable circumstances for rapid recovery The patients are then labeled for transference to one of the clearing hospitals at home—if neurologic to one, if mental to another On arriving at the clearing hospitals, or at a neurologic section in any general hospital, the patient is given treatment If his symptoms are slight or transitory and disappear rapidly, he is sent on furlough, and later is returned to light duty On the other hand, should the course of the disorder be less favorable or should symptoms develop which require special supervision, or if the case is likely to be protracted, or to require special treatment not available in the section, the patient may be transferred to one of the special hospitals for nervous diseases or to a special institution If for various reasons it has not been possible to send patients home through the clearing hospitals so that they arrive directly from overseas at central or auxiliary military hospitals in which there is no neurologic section, or to which no medical officer with special experience is attached, a short period of treatment is given, but should recovery not take place within two or three weeks, the patient is transferred for treatment to the neurologic section of the nearest territorial general hospital Neurologic cases include most forms of functional paralysis, especially paraplegia disturbances of speech and articulation, amnesia or loss of memory, the effects of terrifying dreams, mutism, deafness, deaf-mutism, amblyopia, "bent back," tremblings and motor agitations, ticlike movements, sleeplessness, nervous debility, indecision, loss of self-confidence and the milder forms of neurasthenia, simple mental confusion, the anxiety psychoneuroses and simple mental depression The treatment consists chiefly of rest and feeding, massage, and electrical applications in suitable cases, baths, when these seem indicated, and psychotherapy in the form of simple suggestion and occasional hypnosis The results of treatment show 40 per cent of patients returned to light duty, 20 per cent invalided, and 20 per cent transferred for further treatment to special *institutions*

In mental cases the patients are examined by the special medical officers attached to the hospital All patients suffering from the severer psychoses of a certifiable type are given two or three weeks' probationary treatment If no recovery has taken place during this time, they are transferred to a special hospital The number of patients who recover during their stay and are returned to light duty is negligible The patients transferred to the mental hospitals are of a certifiable type and include most of the severe forms of acute mental disorder—the confusional psychoses, mania, the graver melancholias, acute delusional and hallucinatory psychoses, dementia praecox, mental deficiency with confusion, general paralysis of the insane, and epilepsy with mental symptoms In accordance with accepted policy, none of the patients in these hospitals is certified as a person of unsound mind Each patient is given a reasonable per of treatment with a

TREA[illegible]ENING FROM FRAC[illegible] OF THE FEMUR

At the Reunion medicale de la I-ere Armee, Dr Le Fort announced that he has treated eight cases of shortening receiving and fil-

WILLIAM WILLIadies' Advisory/Mrs Emily Chartres-Martin, both of San Diego, at Los Angeles, July 15

SAMUEL WHEELES MCKEL X, M D, Kankakee Ill to Miss Anna McCumisky of Anna Ill, at East St Louis, July 19

ERNEST PERCY CHARTRES-MARTIN, M D to Miss Margaret King Ascher, both of San Diego Calif, July 18

CECIL HENDRY WILSON, M D, Bartow, Fla, to Miss Sarah Esther Ashton of Laird, Colo, recently

JOHN ROGERS PARRY, M D Lima, Ohio, to Miss Dorothy Moitz of Philadelphia, June 26

FRANK B CROSS, M D to Mrs Josephine Thrall Stoll, both of Cincinnati, July 14

JOSEPH D SULLIVAN to Miss Mabelle Marie Smith, both of Kenosha, Wis, July 20

ROSCOE WALKER, M D, Pawhuska, Okla, to Miss Artie Lee Gorsuch, Denver, June 28

COLE F SMITH M D, to Miss Ada B Cecil, both of San Antonio, Texas, July 21

Deaths

Jacob H Hartman, M D, Baltimore, University of Maryland Baltimore, 1869, aged 69, a Fellow of the American Medical Association and vice president of the American Laryngological Association in 1883 and 1890, a specialist in diseases of the ear, nose and throat, surgeon to the Baltimore Eye, Ear and Throat Charity Hospital, lecturer on diseases of the throat and chest in Washington University from 1874 to 1877, consulting surgeon to the Baltimore Hospital for Consumptives died in Mercy Hospital, Baltimore July 28

James Franklin Heady, M D, Glendale, Ohio, Miami Medical College, Cincinnati 1878, aged 64, treasurer, clinical lecturer on medicine and professor of medical economics in his alma mater, a member of the Cincinnati Obstetrical Society and Cincinnati Academy of Medicine, vice president of the First National Bank of Lockland, Ohio, and medical director of the Cincinnati Life Insurance Company, treasurer of the village of Glendale, died at his home, July 24, from arteriosclerosis

Frederick Rankin Charlton, M D, Indianapolis, Medical College of Indiana, Indianapolis, 1894, University of Pennsylvania, Philadelphia 1896, aged 43, a Fellow of the American Medical Association, a fellow of the American College of Surgeons, a member of the American Urological Association and the Association of Military Surgeons of the United States, professor of genito-urinary diseases and surgery in Indiana University, Indianapolis, a member of the consulting staff of the Indianapolis City Hospital and Dispensary, a medical officer of the Indiana National Guard for several years with service in the Spanish-American War, died at his home, July 29

Gilbert LaFayette Pritchett, M D, Fairbury, Neb, Rush Medical College, 1878, aged 67, formerly a Fellow of the American Medical Association, a member of the Association of Military Surgeons of the United States, and International Association of Railway Surgeons, major and surgeon, Nebraska National Guard, retired, with active service as brigade surgeon in the Sioux Indian War in 1890-1891, local surgeon for the Rock Island System, mayor of Fairbury in 1890, died at his home, July 28

Michael Kelly, M D, Fall River, Mass, Bellevue Hospital Medical College, 1885, aged 61, a member of the Massachusetts Medical Society a member of the attending staff of Union Hospital, Fall River, and St Vincent's Orphan Home and the Seaside Home for Sick Children, consulting physician to the Fall River City Hospital, for nine years chairman of the Municipal Board of Health, died at his summer home in Tiverton, R I, July 28

Otho C Wright, M D, Jarratt, Va, College of Physicians and Surgeons, Baltimore, 1893, aged 48, a Fellow of the American Medical Association, a member of the State Board of Medical Examiners and State Board of Health and once president of the Medical Society of Virginia, while driving his automobile over a grade crossing at Owen's Store, July 8 was struck by an Atlantic Coast Line freight train and instantly killed

Dennis VFORM
of Vermont, Burlington,
American Medical Association, local
Valley Railroad and a member of thence the various letters
tion of Railway Surgeons, one of theames appear as testimo-
of northeastern Pennsylvania, a dircks which were originally
Laceyville, died at his home, June
heart
Association of Proprietary

Francis Joseph Woodman, Mo financial interest in the
George Washington University, n paying the expenses
aged 64, a Fellow of the America
chief medical examiner in the peR T J SCOFIELD
officer of the National Guard of td not say whether or not
from 1899 to 1909 when he was re
Corps, died at his home, July 28

William Orsmer Majilton, M D, Y MR HOUGH
University, New York 1881, a membic is a tablet to be dis-
of the State of New York and for t che
titioner of the Tremont section, a
medical department of the construc
aqueduct, died at his home, July 26
to the jury the names of

Russell Henry Roof, M D New sitions not yet in evidence
Medical College, 1878, aged 65, hereupon rested their case
Department of Charities and Corre
1878 to 1883, and visiting physician
Randell's Island, from 1884 to 1Testimony
Stamford, Conn, July 27
ffered the following evidence

Frank Hammett Holt, M D
School, 1899, aged 47, a Fe W D HAGGARD
Association superintendent of
Chicago formerly assistant supiled as a witness for the
City Hospital, died in Michael
from nephritis
MR T J SCOFIELD

James H Lackey, M D, Nashvthat he is located in Nash-
lege of Medicine and Surgery, 1 He graduated from the
Fellow of the American Medical 3 He served a year as an
from Trigg County, Ky, in the Hospital, and two years in the
his home in West Nashville, ate of New York, as House Sur-

Samuel William Hammo
folk, Va, University of Marypractice of medicine He was
while answering a professionnd Diseases of Women in the
fracture in a collision bet or about twelve years, and Sur-
car, and died in the Norfolk, as well as Gynecologist at St

Lyman Beecher Shehan, about seven years he conducted a
School of Maine, Brunswick, gton He has had considerable
low of the American Medica women
surgeon, U S P H S, fore knows Mrs J M Willis, who
Superior, died at his home, known her for thirteen or four-

Charles Kelly Briddon, M D her thirteen or fourteen years
cians and Surgeons in the Clopian tube—one on either side
for twenty-four years consultited on her for gallstones, and
Hospital, New York, surgeon her for falling of the womb
Civil War, died at his home on for gallstones all he could

Erastus Edwin Eads, M D, Lat time the uterus was just
Medical College, St Louis, 187the world He has advised
July 24, from the effects of At present the condition of
administered it is believed, ngs into the world every time
despondent over business trou
He examined her three weeks

Asa Harvey, M D, Canon
Institute, Cincinnati, 1875, dition of prolapse has steadily
Louis, 1878, Colorado Schod the patient several years ago
aged 63, formerly a Fellow estion of the uterus sufficiently
ciation, died at his home, Jued The general health of the

L Frank Ellison, M D, W in the last two or three years
cal College 1866, aged 75, le to do her work and has been
New Castle County and alys at a time during the last few
County Levy Court, died
in Kirkwood, Del, July 26ATION BY MR WALKER

Dorran Benjamin Coxe, at the time he performed the oper-
Medical School, Hanover, placed the womb, but it came down
the Rhode Island Medica
titioner of Riverside, R h replacing it
sarcoma of the left femurake the examination after you saw Dr

Andrew P Wilson, M rial or you received a letter from him—
before today in my life and I never
Southern California, Los on earth
of the American Medicalke the examination of this woman? *A*—
and killed at Helm Meac
Sierras, July 20
that is here? *A*—Yes sir

William M Hall, M Dere through the trial Did you go to this
ical College, 1883, aged you came there representing the Board of
Society of the State o —No sir
he woman permit the examination? *A*—
July 25, after an operatifalse capacity
to have the examination made? *A*—I
? *A*—I called on her

edical Col-
Federal Aid for Medical College, 1877,
bill to provide fede of the American Medical Asso-
persons (S 5885) ient in Chicago, July 29, from heart
Committee on Publı
bill authorizes the le, M D, Philadelphia, Jefferson
vention not exceedi ed 63, for forty years a druggist
sanatoriums, whether died in the Episcopal Hospital in
States, for the care pulmonary embolism
persons, not legal re D, Pigeon Cove, Mass, Harvard
the time located aged 52, a member of the Massachu-
when the state or d a member of the local school board
sanatorium is locate his home, July 21
residence, pays a s M D, New Albin, Iowa, College of
by the United States, Keokuk, Iowa, 1897, was caught
sons may be provic omobile, July 23, sustaining injuries
transportation to t few hours later
dences, but only fo
atorium treatmer D, West Point, Calif, California
toward the ncisco, 1886, aged 64, formerly an
atient acce States Navy, died at his home,
fter barrec esophagus
w, whether New York, Baltimore University,
of transpo urgeon for the eye and ear depart-
report, 10,000 to 15,00 pital and the German Policlinic,
annually, about half of
Tuberculosis is increa P Clifty, Ind, Medical College
it is said, to infectio nger aged 63, a member of the
strangers, the lack ained on, died at his home, July 23,
Western states havin shall
of such patients in pri ma D, Perry, Iowa, Eclectic Medi-
expected to stimulate m 896, aged 48, died at his home,
West but throughout s juries received in an automobile
It is not practicable,
resident consumptives to Goliad, Texas, New York Uni-
to require the home st perati aged 74, was instantly killed,
of caring for them ment, ae plunged off a bridge into a
practicable, even i ty of ph
states to quarantine
itient wh thiana, Ky, Homeopathic
red to b/2, aged 72, a Confederate
he trea 75, from arteriosclerosis

Cultivation of Medi o refusal hester, N C, Baltimore
of agriculture has ap substitutes, 892, formerly of Dillon,
cultivation of medici sicians wh eville, N C, July 21
will prove useful even
Special efforts are to mited t icago, University of Toronto,
frangulae In the ence in of the American Medical
has been inaugurate ded for July 29, from pneumonia
was organized at Utre ch the c Kansas City, Kan, Western
ing there last montl be encou 1886, aged 56, a member of
and two weeks later at institu d at his home, July 21
tion The *Pharmac* se institut ankakee, Ill, Rush Medical
issue to the subject, edical offi r of the Illinois State Medi-
articles and abstract cular has uly 30
medicinal herbs d to the

Deaths in the Pro drawin Norman Park, Ga, Atlanta
de laboratoire at th being ta rgeons, 1913, aged 36, died at
at the Broca hospital, and tr monia
to the last, having the meaort Wayne, Ind, Fort Wayne
"Manual of Microsc t be succe 34, died in a hotel in Indian-
passed through sever hospitals itis
sonal physician to th my counci elica, N Y, University of
dates from 1882—— reby thos 40, died in Buffalo, July 22,
librarian of the Acade es would be
scientific societies, me devote pa Springfield, Ohio, Eclectic
etc——G de Achaval o interferen 78, aged 64, died at his
medicine in the Univ ntemplated,
Public Health Service he hospital his, Tenn, University of
Rosario bank, and at al commissi aged 64, died at his home,
his province, aged 60 public knowl
f venereal di
Pa tional me e, N D, Queens Univer-
tions has a Fellow of the Ameri-
ction former home, Almonte,

Statistics of ing
Dr Chambrelent, agrege (license, Indiana, 1897),
Faculte de medecine de Bo years, died at his home,
Revue scientifique a statistical
examination of the last statistic as, Vanderbilt Univer-
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undergo important modifications owing
Thus, if the population of France is divic

at con alling impo of every arrange the are ncil, a scie t from a per

The Prop rm

IN THIS DEPARTMEN THE COUNCIL
ON PHARMACY AND CHE D OF THE ASSOCIATION
LABORATORY, TOGETHER WITH THER MATTER TENDING
TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE
MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

WINE OF CARDUI SUIT

(Concluded from page 460)

June 8, 1916, Morning

It was stated by attorneys for both sides that the witnesses produced by the plaintiff were the witnesses whose names were given in evidence by witnesses for the defendant

TESTIMONY OF MRS JOHN A PATTEN

Mrs John A Patten was called as a witness for the plaintiff in rebuttal

DIRECT EXAMINATION BY MR HOUGH

Mrs John A Patten testified that she resides in Chattanooga, Tenn Her husband is dead and she has two daughters

Objection was made to the witness on the ground that she was the wife of Mr John A Patten Argument was made by attorneys on both sides and statutes and cases cited The Court stated that in his opinion it was competent to produce this witness, but to avoid possibility of error the witness was withdrawn by the plaintiff's attorneys

TESTIMONY OF MR ZEBOIN C PATTEN, JR

Mr Z C Patten was called as witness for the plaintiff in rebuttal

DIRECT EXAMINATION BY MR HOUGH

Mr Patten testified that he resides in Chattanooga, Tenn He is one of the plaintiffs in this case, being a member of the partnership composed of John A Patten and Z C Patten, Jr He is 41 years of age He became connected with the Chattanooga Medicine Co in 1893 He has been clerk in the addressing department, worked in the bookkeeping department, in the order and shipping department, the credit department, and later, as associate partner, had charge of the financial end of the business, and general charge of the office

The witness stated that he believes and always has believed that Wine of Cardui was a valuable remedy for the purpose for which the company sold and recommended it He was asked on what he based his belief, the Court ruling that the question was incompetent

Mr Patten stated that from 50,000 to 60,000 druggists and merchants handle Wine of Cardui He stated that he knew from his uncle, his father and from his brother that they regarded Wine of Cardui as a valuable remedy He saw thousands of letters that come to the company and statements brought in by salesmen from druggists, indicating the benefit that their customers have received from the medicine All this strengthened his belief that this medicine was useful and a valuable remedy He knew of its use in his family and in the family of friends He never knew of the medicine being used as a beverage Frequently women wrote that they had difficulty in taking the medicine because it nauseated them

The witness stated that he had personally not read all of the letters that appear in bound volumes—the letters which were offered in evidence He read a large number at different times, but he could not say exactly how many

Mr Patten testified that Dr John W Mallett, a chemist, during 1906 endeavored to reduce the content of alcohol contained in the preparation The percentage was reduced to 17 per cent, and owing to the fact that letters were received concerning the spoiling of the medicine the per cent was raised to 20 per cent

CROSS-EXAMINATION BY MR T J SCOFIELD

Mr Patten testified that his particular duties were the financial part of the business and charge of the general office work The receiving and filing of testimonials was conducted in the Ladies' Advisory Department The mail that is received is sorted by mail clerks and sent to different departments For many years Mr John A Patten opened the mail, later the witness took charge of that work and finally it was turned over to confidential clerks The witness himself opened the mail for four or five years after the partnership was formed in 1906

The witness stated that the testimonial letters eventually go to the Advertising Department, which is near the Advisory Department Mr Wheatly has general charge of the Advertising Department, probably since 1903 He stated that he would frequently see testimonials in both the Advisory and Advertising Departments and sometimes those that were published He could not distinguish which testimonials he had seen He could not say definitely that he had read the testimonials which appeared in the Home Treatment Book for 1912 or for 1913 He does not know that testimonials have been changed from one edition to a different form in another There was then read to the witness several testimonials from the 1912 book and the same testimonials from the 1913 book, with the exception that certain words were changed He stated that he did not know how this occurred He does not know if they received two letters in the same language with a single exception, but he believes they must have received two letters The witness promised to ask his Advertising Council and produce the testimonials in Court if possible

An adjournment was taken until 2 o'clock the same day

June 8, 1916, Afternoon

TESTIMONY OF MR Z C PATTEN, JR (*continued*)

The Court met pursuant to adjournment Mr Patten resumed the stand and testified in his own behalf

FURTHER CROSS-EXAMINATION BY MR T J SCOFIELD

Mr Patten stated that he had found the testimonials Mr Hough stated that he would produce them Mr Scofield then read to the witness several testimonials which appeared word for word in the 1912 and 1913 Home Treatment Books for Women with the exception of the addition of the words 'and cardoseptic," or the substitution of the word "cardoseptic' for Wine of Cardui in the later edition The witness could not say that he took these testimonials into account as a basis for his belief in Wine of Cardui, nor does he know how the changes occurred[1]

The witness promised to produce the testimonial of Mrs Loula Walden, taken from the Ladies' Birthday Almanac for 1915 Mr Patten testified that he is one of the directors of the Proprietary Medicine Association

REDIRECT EXAMINATION BY MR HOUGH

Mr Patten testified that Cardoseptic is a tablet to be dissolved in water and used as a douche It was originally called "Cardui Wash' and later called "Cardoseptic" It was manufactured for the Chattanooga Medicine Co by Parke, Davis & Co The witness stated that the testimonials appearing in the Home Treatment Book for 1912 and 1913 were based on the parts of several letters received from the various witnesses

Mr Hough then read in evidence the various letters received from the women whose names appear as testimonials in the Home Treatment Books which were originally read by Mr Scofield

Mr Patten stated that the Association of Proprietary Medicine Manufacturers have no financial interest in the present case and have not assisted in paying the expenses

RECROSS-EXAMINATION BY MR T J SCOFIELD

The witness testified that he could not say whether or not cardoseptic deteriorates

REDIRECT EXAMINATION BY MR HOUGH

The witness stated that cardoseptic is a tablet to be dissolved in water and used as a douche

DEPOSITIONS

After argument Mr Hough read to the jury the names of the various persons who gave depositions not yet in evidence

The attorneys for the plaintiff thereupon rested their case in rebuttal

Defendant's Testimony

The defendants thereupon offered the following evidence in surrebuttal

TESTIMONY OF DR W D HAGGARD

Dr W D Haggard was called as a witness for the defendants

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr W D Haggard testified that he is located in Nashville, Tenn He is 44 years old He graduated from the University of Tennessee in 1893 He served a year as an intern in the National City Hospital, and two years in the Woman's Hospital of the State of New York, as House Surgeon and then began the practice of medicine He was Professor of Gynecology and Diseases of Women in the University of Tennessee for about twelve years, and Surgeon to the City Hospital, as well as Gynecologist at St Thomas' Hospital For about seven years he conducted a private infirmary in Washington He has had considerable experience in the diseases of women

The witness testified that he knows Mrs J M Willis, who lives near Nashville, and has known her for thirteen or fourteen years He operated on her thirteen or fourteen years ago for abscess of the fallopian tube—one on either side Several years ago he operated on her for gallstones, and also proposed to operate on her for falling of the womb He considered the operation for gallstones all he could safely do at that time, at that time the uterus was just beginning to hang out into the world He has advised operation for this condition At present the condition of the womb is such that it hangs into the world every time the patient stands on her feet He examined her three weeks ago, he found that the condition of prolapse has steadily increased since he examined the patient several years ago The patient has had congestion of the uterus sufficiently severe to confine her to bed The general health of the patient has not been good in the last two or three years The patient has been unable to do her work and has been confined to her bed for days at a time during the last few years

CROSS-EXAMINATION BY MR WALKER

The witness stated that at the time he performed the operation for gallstones he replaced the womb, but it came down the moment he got through replacing it

Q—How long did you make the examination after you saw Dr Heizer since this case was on trial or you received a letter from him — *A*—I never saw Dr Heizer before today in my life and I never received a letter from him on earth

Q—Who asked you to make the examination of this woman? *A*—Dr McCormack

Q—The Dr McCormack that is here? *A*—Yes sir

Q—And that has been here through the trial Did you go to this woman and tell her that you came there representing the Board of Health of your state— *A*—No sir

Q—and demanding that the woman permit the examination? *A*—No sir I went in no such false capacity

Q—Did she call on you to have the examination made? *A*—I called—

Q—Did she call on you? *A*—I called on her

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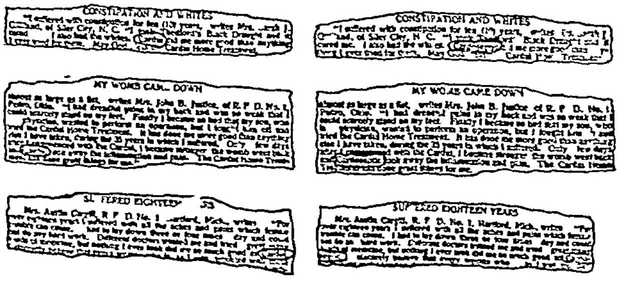
[1] Some of those testimonials which while practically verbatim in the 1912 and 1913 editions respectively of the Home Treatment for Women had been modified to introduce Cardoseptic are here reproduced in miniature


1912 Edition 1913 Edition

Q —You called on her to have the examination made? *A* —I called on her

Q —You called on her at the request of Dr McCormack? *A* —I did

Q —Yes Because she was a patient of yours? *A* —Yes, sir, exactly

Q —To make an examination for the purposes of this case? *A* —To see what her true condition is

Q —No, to make an examination for the purposes of this case?

The Court —Mr Walker, you are not testifying, the witness is He says one thing, and you another

Mr Walker —I will change the form

The Court —I mean, we must understand who is giving the evidence

Mr Walker —Yes, I will change the form I think we will understand it I will change the form

Q —Didn't you make the examination for the purpose of testifying in this case? *A* —I made the examination for the purpose of disclosing her true condition at the present time

Dr Haggard stated his conversation leading up to his examination of Mrs Willis

TESTIMONY OF DR HUGH M'GUIGAN

Dr Hugh McGuigan was called as a witness for the defendants

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr McGuigan testified that he is a physician residing in Chicago, specializing in pharmacology He graduated from the Rush Medical College in 1908, the North Dakota Agricultural College in 1898, in the chemistry course He received the degree of Ph D from the University of Chicago in 1906 He has studied at the University of Michigan and a year at the University of Heidelberg, specializing in food, chemistry and pharmacology He is a Professor of Pharmacology at the present time in the Northwestern University Medical School and has been for six years

Q —In connection with your work in pharmacology, have you done any special research work of any kind? *A* —Yes I have done work on a number of lines I worked first perhaps on the oxidization of sugars in dead bodies When I was in Heidelberg I worked with Professor Gottlieb on the action of drugs on the uterus I have worked also on morphin, strychnin, formaldehyd, adrenalin, ammonia, atropin, pilocarpin, and a number of others I have published in all, I think, 30 or 40 papers I cannot recall all of them

Q —Did you do this work on animals, Doctor, or how? *A* —On animals, yes, sir

The witness stated that he had performed experiments the same as those of Dr Mason, which were performed for the plaintiff in an endeavor to discover the potency of drugs contained in Wine of Cardui

Objection was made by the plaintiff to the introduction of such testimony as incompetent Argument was made extensively by attorneys for both sides The Court ruled that the witness might be asked questions as to Dr Mason's methods to find out if the methods were proper, but the fact remains that Dr Mason said the guinea-pig died, because of something he did to it

Dr McGuigan testified that he had read Dr Mason's testimony, he has examined the chart which Dr Mason introduced in the case From an examination of this evidence he is of the opinion that the experiments show nothing as to whether Wine of Cardui contains a potent principle The examination made by Dr Mason was not complete in any etail The only thing that he could conclude is that the uinea-pigs died The cause of their death he could not ell in any way or form He might have determined the ause of death by a postmortem examination or by making ome more experiments, but there is no evidence that in his xperiments the drug killed the animals The witness has nade postmortem examinations in similar cases to deternine the cause of death of animals It is usually customary or a pharmacologist to make an examination to determine he cause of death

The jury was excused at this point

Mr Scofield made an offer to the Court to show that Dr lcGuigan repeated Dr Mason's work Dr Mason's work vas entirely on ten guinea-pigs, three died and seven lived)f the three which died, postmortem showed that death was aused in one by perforation of the bowels with a needle nd the other two died by infection He also offered to ntroduce similar evidence by other witnesses who had repeated the experiments of Dr Mason Objection to this offer was made, and the objection was sustained

An adjournment was taken until Friday, June 9, 1916, at 10 30 o'clock a m

June 9, 1916, Morning

TESTIMONY OF DRS ARTHUR S LOEVENHART

The Court met pursuant to adjournment Dr Arthur S Loevenhart was called as witness for the defendants in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr Loevenhart stated that he testified in this case before He is familiar with the experiment performed by Dr Mason, the chart exhibit and the methods by which Dr Mason conducted these experiments Dr Loevenhart considered that the conclusions which Dr Mason drew were not justified from the experiments because the experiments were so faulty in some respects that it was impossible to draw such conclusions The witness was asked in what respects the experiments were faulty Objection was made to the question and overruled The witness answered

The Witness *A* —In the first place, the handling of the guinea pigs was faulty Dr Mason describes having held the guinea pigs by placing the head and front paws in a wide mouthed bottle This is not a justifiable manner of holding the guinea pig, because if the bottle fits tightly enough around the head and front paws, there is danger of suffocation of the animal

In the second place, if it does not fit tightly enough around the head and front paws, it will admit of struggling on the part of the animal, in the course of which struggling, due to the pricking of the skin by the needle, they are likely to hit their heads against the neck of the bottle, and with these delicate little animals, it is very easy for them to produce by such struggling a hemorrhage at the base of the brain, which might result fatally in from five minutes to an hour

In the second place, the experiments were faulty because there was no effort to remove the hair from the abdomen either by shaving or plucking the hair from the site of the injection

In the third place, the swabbing of the abdomen with alcohol, as described by Dr Mason, is insufficient to sterilize the surface of the abdomen with the hair not removed in that way

In the fourth place, no precaution was taken to prevent the needle from being inserted so deeply as to do serious injury to a vital organ of the chest or abdomen, in the course of the injection and the struggling

In the first place, I believe that Dr Mason testified that he did not know what had been previously in the syringe before making the injection, which is essential of course for the pharmacologist to know he should know what had been previously in the syringe and that it had been thoroughly cleansed, and the whole experiments were very faulty in this regard, that in case of death of the animal within such a short period as he described, in two of his experiments (guinea pigs No 5 and No 6) within 17 and 29 minutes respectively, the failure to do an autopsy would prevent—in such a rapid death to determine whether the animals had died as a result of the drug, or as the result of physical violence by the needle or by the holding and struggling—would prevent any competent pharmacologist from drawing any conclusion as to what was the cause of death in those cases

Q —Doctor, I will ask you whether or not an autopsy or an examination of the body of the dead animal, a postmortem examination, would have disclosed the cause of death

Dr Loevenhart stated that the postmortem examination would show the cause of death In his opinion the death of the guinea-pigs used by Dr Mason was not produced by the medicine because if the experiment had been done correctly and with proper precautions the guinea-pigs would not have died, as Dr Loevenhart himself has shown in ten guinea-pigs The Court ruled that the last phrase might be stricken out

The witness was asked whether or not alcohol which is taken through the mouth in such quantities that it is almost completely oxidized in the body may still produce consequences which are harmful to the individual who takes it The witness stated that the alcohol may still produce harmful effects It will still produce its toxic effect before it undergoes oxidation

Mr T J Scofield —Now, will you explain how that may happen, how the oxidation occurs and how the toxic effect of alcohol is disseminated in the system? *A* —It is true that alcohol will oxidize in the body to carbon dioxid and water, both of which have no action in the body, and, after it has been so oxidized it is inert On the other hand, alcohol taken into the body is absorbed into the blood circulation throughout the body, and the tissues take up the alcohol from the blood in proportion to its concentration in the blood The more concentrated it is in the blood the more concentrated it will be in the tissues the brain, the liver and the kidneys and all the organs

As it is gradually oxidized—there is no evidence that the alcohol is quickly or suddenly oxidized, as soon as it is absorbed It remains in the body a certain time after it is ingested and as the alcohol is gradually oxidized it passes back from the tissues into the blood again, or is oxidized in the tissues and before it is oxidized it exerts all of its deleterious and harmful effects in the tissues, as shown by the fact that even small amounts of alcohol, such as a single glass of beer or a single drink of a stronger beverage, such small quantities as are almost completely oxidized in the body produce flushing of the face and talkativeness and other evidences of incipient intoxication in spite of the fact it will be ultimately oxidized to carbon dioxid and water It is before it is oxidized that it exerts its pharmacological and toxicological action

CROSS-EXAMINATION BY MR *HOUGH*

The witness stated that postmortem examination will distinguish between death by chemical means and death by violence An autopsy supplemented by chemical analysis, if the latter is successful, will in all cases disclose the cause of death

TESTIMONY OF DR EDWARD E REISMAN

Dr Edward E Reisman was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY *MR T J SCOFIELD*

Dr Reisman testified that he is a surgeon residing in Chattanooga, and a member of the staff of the Erlanger Hospital He is acquainted with Mrs Louise Gokey Objection was made to the testimony as not proper The Court overruled the objection The witness stated that he operated on Mrs Gokey for removal of both fallopian tubes, two broad ligament cysts and an appendectomy There were very dense adhesions Objection was again made to the testimony on the ground that it was not proper

Mrs Gokey had stated in her deposition in reply to the question "What is your condition of health now?" Answer "Fine, good health"

The witness stated that from the history of the case of Mrs Gokey *she must have suffered from this condition* at the very shortest from eight to twelve months He stated that such a condition would cause a woman to have irregular menstruation and flooding In his opinion this condition might have produced pain

Dr Reisman testified that Mrs Gokey gave him her history at the time of examination—namely, that this trouble had been going on for several months, and that she was suffering with pain in her lower abdomen, intermittent and irregular flow She thought at first that she was probably pregnant and she sought medical advice primarily for this condition She stated that she had been suffering for several months Mrs Gokey came to Dr Reisman through Dr Roberts, her family physician At the time she came to him he knew nothing whatever concerning the fact that *she testified* in this case

Mrs Gokey told Dr Reisman after the operation, when he had explained to her its nature that she had given a deposition relative to the curative effects of Wine of Cardui The Court ruled on objection *that the part of the testimony referring to the woman having pain might be stricken out*, the balance might stand

CROSS-EXAMINATION BY MR. WALKER

The witness testified that Mr Z C Patten, Jr, is trustee of the hospital in which he is surgeon

The attorneys for the plaintiff moved that the entire testimony be stricken out The Court stated his ruling the same as before, and exception was taken

TESTIMONY OF DR. G M ROBERTS

Dr G M Roberts was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR. T J SCOFIELD

Dr Roberts testified that he is a physician practicing in Chattanooga He is acquainted with Mrs Gokey Mrs Gokey came to him Feb 25, 1916, complaining of enlargement and stating that she was possibly pregnant She stated that she had pain in both sides and that she had suffered in this way since she was married, which was about 14 months He examined the patient and found a mass on each side of the uterus, vaginitis and tenderness Objection was made to the testimony and overruled He recommended that the patient consult Dr Reisman, the previous witness

The witness agrees with everything Dr Reisman said

Dr Roberts stated that he knows Mrs W M Irwin Mrs Irwin came to see him He was at her house about the 15th of March, 1916 Mrs Irwin told him that she was still suffering with her female trouble, leukorrhea, etc

The Court ruled that the evidence in regard to Mrs Irwin might be stricken out as not proper surrebuttal

The witness stated that Dr Reisman is surgeon of the Baroness Erlanger Hospital, where Mr Z C Patten is Trustee, *and there is a record of the operation in the hospital*

CROSS-EXAMINATION BY MR WALKER

The witness stated that he is not a member of his local medical organization He was recently suspended for neglecting to pay his dues *He has not received any letter regarding* this suit His expenses are being paid by Dr Reisman Dr Reisman brought him to Chicago

TESTIMONY OF MR *JOHN* P LISTER

Mr John P Lister was called as a *witness for the defendant* in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Lister testified that he resides in Gadsden, Ala He was sheriff one term and deputy sheriff twelve years He has an extensive acquaintance in the city and county He has known Dr Appleton for twelve years He believes Dr Appleton's general reputation for truth and veracity is good He would believe him on oath

CROSS-EXAMINATION BY MR WALKER

Dr Appleton is not the witness' family physician, although he has treated him at times He has not treated any members of the witness' family The witness is now special agent for the Queen & Crescent Railroad, looking after lost freight claims Dr Appleton saw the witness about coming to Chicago He has never heard Dr Appleton's character discussed

TESTIMONY OF DR M B HUGHES

Dr M B Hughes was called as witness for the defendant in surrebuttal

Dr M B Hughes testified that he resides in Gadsden, Ala, and has practiced in that city for ten years He is acquainted with Dr Appleton They have consulted together at times *He considers Dr H L Appleton's reputation for truth and veracity as good* and he would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that he had never heard anyone say anything derogatory to the character of Dr Appleton Dr Hughes is a member of his local and state society He subscribes for THE JOURNAL

TESTIMONY OF DR JOHN P STEWART

Dr John P Stewart was called as witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr John P Stewart testified that he resides in Attala, Ala, of which he is mayor It is about five miles from Gadsden Attala is *a town of about 3 000 to 5,000* He has been practicing 31 years He has known Dr Appleton since 1903 The witness at first thought it was 1908 when Dr Appleton was elected president of the Tri-State Medical Association He then remembered that he met him when Dr Appleton was made a member of the Knights of Pythias The witness stated that he is a politician and knows everybody He has never heard the reputation of Dr Appleton questioned, and he would certainly believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that he does not know Mr Wharton or Mr Cobb He does know Drs Johnson and Murphy He has never heard Dr Appleton s character questioned So far as he knows, Dr Appleton has never held any political office

TESTIMONY OF MR FRANK M COTTLE

Mr Frank M Cottle was called as witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Cottle testified that he is in the drug business in Gadsden, Ala, where he has been for thirty-six years He knows Dr H L Appleton and considers the general reputation of Dr Appleton for truth and veracity as good and would believe him under oath

CROSS-EXAMINATION BY MR WALKER

witness stated that he arrived in Chicago the day
estifying, with him was Drs Stewart and Hughes
Lister

Dr Appleton's office is across the street from the witness' drug store Dr Appleton showed him his testimony The witness has never spoken to anyone concerning Dr Appleton's character There is no commission arrangement between the witness and Dr Appleton concerning prescriptions

An adjournment was taken until 2 o'clock the same day

June 9, 1916, Afternoon

TESTIMONY OF MR J C HUNTLEY

The Court met pursuant to adjournment Mr J C Huntley was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr J C Huntley stated that he has resided in Ruby, S C, for eighteen years, where he is agent of the Chesterfield & Lancaster Railroad Company, which position he has held for twelve years He knows practically everybody in the community He knows Dr R M Newsom, who has boarded with him for five years He considers Dr Newsom's reputation for truth and veracity as good and would believe him on oath

CROSS-EXAMINATION BY MR HOUGH

The witness identified the signature of Dr Newsom He stated that he has never heard Dr Newsom's reputation for truth and veracity discussed Dr Newsom did not talk with the witness about the testimony he has given in this case Dr Newsom is the family doctor of the witness He has seen Miss Erwin, but never met her He stated that he does not know C J Huntley of Ruby, S C

TESTIMONY OF MR J F CRAWLEY

Mr J F Crawley was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Crawley testified that he lives in Ruby, S C, where he is engaged in farming He knows everybody in that section of the country He has known Dr Newsom for five years, and considers his general reputation for truth and veracity as good, and would believe him under oath

CROSS-EXAMINATION BY MR HOUGH

Dr Newsom is the witness' family physician He knew that Dr Newsom came to Chicago a month and a half ago to testify He has never heard Dr Newsom's reputation questioned Dr Heizer asked the witness to come to Chicago

TESTIMONY OF REV A B SMITH

Rev A. B Smith was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Rev A B Smith testified that he resides in Ruby, S C He was a farmer until he was twenty-six years old, and since then has been a Baptist minister He is pretty well acquainted all over the county He has known Dr Newsom for five years The witness stated that he has never made any statement to Dr Perry concerning the character of Dr Newsom He heard Dr Perry make a statement about Dr Newsom perhaps about the beginning of the year He con-
rs of Dr Newsom for truth and veracity
ess stated that Dr Perry is a relative
rriage

ATION BY MR HOUGH

he had heard Dr Newsom came
he has heard Dr Newsom's reputation discussed was the time he mentioned He stated that he had a chum who was bitten by a cat and he took the chum to Columbia to be treated He did not make a statement to Dr Perry about Dr Newsom at that time He does not remember that he has ever had any conversation with Dr Trotty about Dr Newsom or with Dr Teale Dr Heizer saw the witness about coming to Chicago

The witness stated that he retired from the ministry about two years ago He was not forced to retire He did not state to either Mr Reibers or to Mr Rivers that he would not believe Dr Newsom

TESTIMONY OF MR T G GRIGGS

Mr T G Griggs was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Griggs testified that he lives in Ruby, S C, where he is engaged in the manufacturing of lumber He knows practically everyone in Ruby Dr Newsom is his family physician and he considers Dr Newsom's reputation for truth and veracity as good and he would believe him under oath He once heard Dr Fundenberg make some statement about Dr Newsom Dr Fundenberg was there before Dr Newsom came

CROSS-EXAMINATION BY MR HOUGH

The witness stated that he thought everyone believed Dr Newsom Dr Fundenberg stated he would not believe Dr Newsom The witness stated that he knows of the witnesses who testified for the plaintiff concerning Dr Newsom but has not talked with them about Dr Newsom's reputation

REDIRECT EXAMINATION BY MR T J SCOFIELD

The witness stated the circumstances under which Dr Fundenberg had made statements concerning Dr Newsom's character, namely, Dr Fundenberg was called in to take care of a confinement during Dr Newsom's absence, and at the time of his payment Dr Fundenberg stated that Dr Newsom was more apt to tell a lie than anything else

RECROSS-EXAMINATION BY MR HOUGH

The witness stated that Dr Fundenberg was the only one he had heard discuss Dr Newsom's character since the beginning of the trial

DEPOSITIONS

Mr Loesch offered to read some depositions relative to Lydia Powell

TESTIMONY OF REV A B SMITH

Rev A B Smith resumed the stand in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Rev A B Smith stated that he retired from the ministry to rest, and has at present offers from four churches

COURT RULING ON DR HAGGARD'S TESTIMONY

The Court ruled that so much of Dr Haggard's testimony as related to the condition of the woman's womb might be stricken out After two more depositions were read the jury retired

Arguments were then made before the Court regarding the introduction of depositions as to the death of Lydia Powell These depositions were to show that the Lydia Powell mentioned in the article of THE JOURNAL of the American Medical Association was not the Lydia Powell mentioned in the testimonials of the Chattanooga Medicine Co, but that the American Medical Association published in good faith the statement that the Lydia Powell of the Chattanooga Medicine Co testimonial was dead The attorneys for the plaintiff admitted that the mistake was an honest mistake

June 12, 1916, Morning

TESTIMONY OF REV R R BRASHER

The Court met pursuant to adjournment Rev R R Brasher was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Rev Brasher testified that he is a minister, residing in Plantersville, Ala, ten miles from Maplesville He preaches in both places He has been pastor for more than two and a half years He has known Dr W E Kay, of Maplesville, over two years and a half He considers the reputation of Dr Kay as good and would believe him under oath

CROSS-EXAMINATION BY MR WALKER

Dr Kay is not the witness' family physician The witness has not talked with anyone about Dr Kay's reputation for truth and veracity before this case Dr Kay was formerly Mayor The witness has never had any dealings with Dr Kay

TESTIMONY OF DR J J DUBOIS

Dr J J DuBois was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr J J DuBois testified that he has been practicing medicine for twenty years He resides in Stanton, Ala, which is four miles from Maplesville He knows most of the people in Maplesville He is acquainted with Dr W E Kay, whose reputation for truth and veracity he considers good and he would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that he has known Dr Kay for five years He knew that Dr Kay was Mayor and had resigned He had not heard the grounds for resignation The witness stated that he has never been convicted for failing to report the births of children or for practicing medicine without a license The witness is not now under indictment for assault and attempt to murder

Objection to these questions was made and sustained

TESTIMONY OF MR GUY H GERALD

Mr Guy H Gerald was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Gerald testified that he resides in Thorsby, Ala He lived at Maplesville over four years, up to last July He was engaged in the fire insurance business, and was cashier and president of a bank, which failed No litigation is now pending as a result of this failure The witness is well acquainted around Maplesville He has known Dr Kay about four years, and considers his general reputation for truth and veracity as good and would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that he had been employed in three other banks Neither himself nor any of the other officers are being held for any litigation resulting from the failure of the bank The witness knows Mr Fred James, who is a negro He has not talked with Mr James about the character of Dr Kay Mr Gerald knows Dr Glover He has not heard why Dr Kay resigned as Mayor He understood that Dr Kay resigned because he had been bothered so much about litigation in connection with Dr B O Glover He has never heard Dr Kay's reputation for truth challenged

REDIRECT EXAMINATION BY MR T J SCOFIELD

The witness testified that he knows Dr B O Glover and considers his reputation for truth and veracity as bad, and would not believe him under oath

TESTIMONY OF MR. RALPH CALLOWAY

Mr Ralph Calloway was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Calloway testified that he is Mayor of Maplesville and has been Mayor since the first of last July He has resided in Maplesville eighteen years He succeeded Dr W E Kay, who resigned from the Mayorship The witness was appointed Mayor by the town council, which consists of five members He was also postmaster and was sheriff He is thoroughly acquainted with the people of Maplesville and its vicinity He considers the general reputation of Dr Kay as good and he would believe him under oath

The witness stated that Dr Kay resigned because his practice required all of his time and he could not put the time in the Mayor's office that he thought it required The books were audited and found correct He knows Dr B O Glover, whose reputation for truth and veracity he considers as bad and would not believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that there is more than one political faction in Maplesville Dr Glover is on the opposite side Dr Kay was elected Mayor

Mr Calloway stated that he was appointed postmaster in 1906 and resigned in 1914, following a change in administration He stated that he resigned the deputy sheriff's office because he was elected Mayor He could not hold two offices at the same time

REDIRECT EXAMINATION BY MR T J SCOFIELD

Q—You say that you know B O Glover's reputation for truth and veracity? *A*—Yes sir, I think I do

Q—Have you ever heard anybody speak of his reputation?

Mr Walker—That is objected to

The Court—Objection sustained

To which ruling of the Court the defendants, etc, excepted

Mr Walker *Q*—Mr Mayor, don't you know that—a question that has just come to me—that the balance in Kay's bank of the city's funds, was $6 30 and that the shortage was $46 78? *A*—No, sir, I don't

TESTIMONY OF J W RILEY

Mr J W Riley was called as witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Riley testified that he resides in Cottonwood, Ala, where he owns the Riley Telephone Co He is well acquainted in the neighborhood of Cottonwood, Ala, and is a member of the County Board of Education which selects the teachers

The witness is acquainted with Mr Frank B Sellers, a teacher whom he has known for nearly six years He considers the general reputation of Mr Frank B Sellers as good and would believe him under oath He also knows Josh Granger, whose general reputation for truth and veracity he considers good and would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness testified that he cannot identify the writing of Mr Jim Sellers He has never talked with anyone about the reputation of Mr Frank B Sellers He cannot call to mind the number of people whom he heard say that Mr Frank B Sellers would tell the truth

TESTIMONY OF MR J S WILLIAMS

Mr J S Williams was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Williams testified that he resides about eleven miles from Cottonwood, Ala He is a farmer He knows Mr F B Sellers and considers his general reputation for truth and veracity as good He would believe him under oath He also knows Josh Granger He considers Josh Granger's reputation for truth and veracity as good and would believe him under oath He knows Mr William Rucker—a farm hand—he considers his general reputation for truth and veracity as bad and he would not believe him under oath

CROSS-EXAMINATION BY MR WALKER

Mr Walker asked the witness if there was any man in the community whom everybody would believe under oath

Objection was made to this question and sustained

The witness stated that he has never been indicted for conspiracy in reference to bankruptcy cases He was once bankrupt He was never accused of arson He has never had trouble in collecting insurance He has had fires on his property He never has had any personal difficulty with Mr Rucker or with Mr Granger Mr Rucker owed him several hundred dollars when he left Mr Granger used to pay what he owed He testified that he had never heard any of the witnesses for the plaintiff speak of the character of Mr Granger

REDIRECT EXAMINATION BY MR T J SCOFIELD

Williams stated that he has a daughter named Eunice A Glover never attended his daughter, but did fix edicine for her on one occasion The witness tes- at his daughter never took any Wine of Cardui that he knows of He considers the general reputation of Dr Glover as bad, and would not believe him under oath

RECROSS-EXAMINATION BY MR WALKER

Dr Glover is not in debt to the witness The witness does not lend money at usurious interest Dr Glover did not see the witness' daughter The witness knows about her case from what Dr Glover told him The witness is to receive money for coming to Chicago and his expenses Dr Moody spoke to Mr Williams about coming to Chicago

TESTIMONY OF MR N B HUGHES

Mr N B Hughes was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Hughes testified that he is a teacher residing in Cottonwood, Ala He has been a teacher for twenty-five years He considers the general reputation of Mr Frank B Sellers for truth and veracity as good and he would believe him under oath

He knows Josh Granger, whose reputation he considers as good, and he would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that he never heard the reputation of Mr Frank B Sellers questioned before this trial He knows the father, Mr Jim Sellers He does not know his handwriting Dr Moody saw the witness about coming to Chicago

TESTIMONY OF DR W E PAGE

Dr W E Page was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr Page testified that he resides in Ashford, Ala, which is about eleven miles from Cottonwood He knows Mr Frank B Sellers, whose general reputation for truth and veracity he considers as good He knows Mr Josh Granger, whose general reputation for truth and veracity he also considers good and he would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness testified that he treated a little girl in the Sellers' family about eighteen years ago He also treated a farm hand more recently He has never heard anything except favorable talk about Mr Granger The witness has not talked with any of the witnesses for the plaintiff about Mr Sellers' reputation

Dr Page stated that he has never made any attack or interested himself in any attack against Dr Glover since the latter testified in this trial

An adjournment was taken until 2 o'clock the same day

June 12, 1916, Afternoon

TESTIMONY OF MR J H BLAKE

The Court met pursuant to adjournment Mr J H Blake was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr J H Blake testified that he resides near Oakdale, Tenn, where he has lived practically all of his life—seventy years He is a farmer He is well acquainted in Oakdale He knows Joe Cooper, whose general reputation for truth and veracity has always been considered good and he would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness has not talked with any of the witnesses for the plaintiff concerning the character of Mr Cooper Dr Cooper saw the witness about coming to Chicago

TESTIMONY OF MR W A LANGLEY

Mr W A Langley was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Langley testified that he resides in Oakdale, Tenn, where he is County Tax Assessor He knows practically everyone in the town He has known Mr Joe Cooper for twenty-two years, and he considers his general reputation for truth and veracity as good, and would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness testified that his office as County Tax Assessor is an elective office Mr Cooper has always supported him for office The witness was asked if he did not belong to a party which was called the "Cooper gang or bunch" The witness stated that he never heard of it

Mr Langley has not talked with any of the witnesses for the plaintiff about the reputation of Mr Cooper Mr Cooper has not drunk anything for four years

TESTIMONY OF MR GRAM DAVIS

Mr Gram Davis was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Davis testified that he resides in Wardburg, Tenn, which is near Oakdale, Tenn, and was deputy sheriff up to 1912 He knows Joe Cooper, whose general reputation for truth and veracity he considers as good, and he would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that Mr Joe Cooper has supported him in election

TESTIMONY OF MR ALEXANDER ADAMS

Mr Alexander Adams was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Adams testified that he has been engaged in the mercantile business in Oakdale for three years He considers the general reputation of Joe Cooper for truth and veracity as good and would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that he told a friend that this was an opportunity for him to come to Chicago to see his mother at somebody else's expense

DEPOSITIONS

Mr Loesch then read the depositions of Mr John W Bishop, Mr A B Menefee and Moses Elwood McClure, concerning Lydia Powell

TESTIMONY OF DR S P HOLLAND

Dr S P Holland was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr Holland testified that he resides in Columbia, Ala, where he has been practicing medicine He knows where Cottonwood is, and has lived within seven miles of Cottonwood He knows Mr Frank B Sellers, and considers his general reputation for truth and veracity as good He would believe Mr Sellers under oath He knows Mr Josh Granger, whose general reputation he considers as good and would believe him under oath

The witness has not talked with any of the witnesses for the plaintiff concerning the reputation of Mr Frank B Sellers Dr Moody saw him about coming to Chicago Dr Moody asked him if he knew the general reputation of Mr Granger and Mr Sellers, and the witness replied that it was good This was the first time the witness has been asked if he would believe them under oath

TESTIMONY OF MR ROBERT CHESHIRE

Mr Robert Cheshire was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Cheshire testified that his business is running an automobile He knows Josh Granger, whose general reputation he considers as good and would believe him under oath He knows Dr Glover, whose reputation he considers as bad, and he would not believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that Dr Glover's reputation was bad before the witness had impeached the character of Mr Sellers and Mr Granger, and it has become worse since The witness and Dr Glover belong to different political factions Dr Moody arranged with the witness to come to Chicago

The further hearing of the case was adjourned until the following day, June 13, 1916, at 10 30 a m

June 13, 1916, Morning

TESTIMONY OF MR C A GARDNER

Mr C A Gardner was called as a witness for the defendants in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Gardner is the same witness who was sworn as a character witness for the plaintiff He desired to change his testimony in the case to say that when he testified that the Goddards were a 'bunch of crooks" he did not know that there was more than one Dr Goddard, and that he had inquired concerning the matter when he came home and he now desired to withdraw his testimony Dr Goddard whom he understood was a man of bad character was not Dr G M Goddard, a witness for the defendant

CROSS-EXAMINATION BY MR WALKER

The witness admitted what he said at the first time he testified, but stated that he did not know there was more than one Dr Goddard

TESTIMONY OF DR A B SMALL

Dr A B Small was called as a witness for the defendants in surrebuttal

DIRECT EXAMINATION BY MR. T J SCOFIELD

Dr Small testified that he has been practicing medicine in Dallas, Texas, for ten years He knows Dr G M Goddard and considers his general reputation for truth and veracity as good He would believe Dr Goddard under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that Dr G M Goddard himself saw him about coming to Chicago He knew the other Dr Goddard There were three of them The witness has no connection with the sanitarium Dr G M Goddard has called the witness in consultation The witness has not discussed the character of Dr Goddard with any of the witnesses for the plaintiff

REDIRECT EXAMINATION BY MR T J SCOFIELD

The witness testified that he knew that one of the Goddards was a man of irregular habits

RECROSS-EXAMINATION BY MR WALKER

The witness stated that he knew that all three of the Goddards were together in Dallas, Texas

TESTIMONY OF DR C W SIMPSON

Dr C W Simpson was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr Simpson testified that he has resided in Waxahachie, Tex for twenty-four years The witness and Dr Small are on their way to Detroit to attend the Annual Session of the Association He stated that he is well acquainted in the neighborhood of Waxahachie He knows Dr G M Goddard and has known him for twenty years He considers Dr Goddard's reputation for truth and veracity as good and he would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness stated that it has reached him that a brother of Dr G M Goddard was not straight The witness stated that he had not made any arrangements as to expenses for the trip The witness had not talked with any of the witnesses for the plaintiff concerning the charatcer of Dr Goddard

REDIRECT EXAMINATION BY MR T J SCOFIELD

The witness stated that when he attends the Annual Session of the Association he pays his own expenses

TESTIMONY OF DR F A MEANS

Dr E A Means was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Dr Means testified that he practices in Dallas Texas, and has resided in Oak Cliff for twenty-five years He considers the general reputation of Dr G M Goddard for truth and veracity as good, and he would believe him under oath The witness knows that there were three Dr Goddards

CROSS-EXAMINATION BY MR WALKER

The witness stated that he knows Mr George Reynolds He stated that he never told Mr Reynolds that Dr G M Goddard was a crook He knows two of the Goddards were crooks He knows that Dr G M Goddard is honest

TESTIMONY OF MR GEORGE W LEADWELL

Mr George W Leadwell was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Leadwell testified that he is a farmer residing in Boyce, Texas, and that he has known Dr G M Goddard for ten or eleven years, and considers his general reputation for truth and veracity as good and would believe him under oath He is acquainted with Mr J W Pierson, a minister who was formerly in the drug business He never had any conversation with Mr Pierson about the reputation of Dr G M Goddard

CROSS-EXAMINATION BY MR WALKER

The witness was asked whether he was on his way to the meeting of the American Medical Association, he said he was not He came to Chicago with Mr Marx He expects to receive something for his time, in addition to his railroad expenses

TESTIMONY OF MR JOHN T BOARDERS

Mr John T Boarders was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Borders testified that he is a farmer residing in Boyce, Texas He knows Dr G M Goddard, whose general reputation he believes is good and he would believe him under oath He knows Mr Pierson who was formerly a druggist and is now a minister He never had any conversation with Mr Pierson about Dr G M Goddard's character He never heard Dr G M Goddard s character questioned until last week He came to Chicago with Mr Marx He is receiving his expenses

TESTIMONY OF MR L T BUFORD

Mr L T Buford was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr Buford testified that he is a farmer residing in Boyce, Texas He is acquainted with the general reputation of Dr G M Goddard for truth and veracity, which he considers good and he would believe him under oath He knows Mr J W Pierson, but never had any conversation with him regarding Dr G M Goddard

CROSS-EXAMINATION BY MR WALKER

The witness stated that he never had any conversation with anyone regarding Dr G M Goddard The witness came to Chicago with Mr Marx

REDIRECT EXAMINATION BY MR T J SCOFIELD

The witness stated that he knew Mr Marcus G Noel who a drug store at Boyce, Texas Mr Noel was working McIntosh The witness himself owned the building

TESTIMONY OF MR HARRIS M'INTOSH

Mr Harris McIntosh was called as a witness for the defendant in surrebuttal

DIRECT EXAMINATION BY MR T J SCOFIELD

Mr McIntosh testified that he has resided in Waxahachie, Texas, for twenty-one years He knows Dr G M Goddard He knows Marcus Noel, who was in his employ managing a drug store at Boyce He considers the general reputation of Dr G M Goddard for truth and veracity as good, and he would believe him under oath

CROSS-EXAMINATION BY MR WALKER

The witness testified that he has not talked with any of the witnesses for the plaintiff concerning the character of Dr G M Goddard Mr Marx made arrangements with the witness to come to Chicago

Closing

Following this testimony the attorneys for the defendant rested their case The attorneys for the plaintiff also rested their case Arrangements were made for the purchase of bottles of Wine of Cardui, so that the jury might drink them The Court ruled that attorneys for each side could talk six hours for the presentation of argument

An adjournment was taken until 2 o'clock the same day

Following addresses to the jury, the Court read his instructions The latter were published in The Journal July 1, 1916, p 51

Correspondence

Aromatic Spirits of Ammonia

To the Editor —In Queries and Minor Notes (The Journal, July 15, 1916, p 231) Dr Horatio C Wood, Jr, in reference to the administration of aromatic spirits of ammonia, speaks of what was to him a very amusing incident, and belittles the "country doctor" who administered the drug as a stimulant in shock Dr Wood's article insinuates that the "country doctor" was ignorant of the action or rather the inactivity of the drug in question Perhaps so, but I am at a loss to see how and where he was at fault, for the literature, "authentic literature," is teeming with references to, and recommendations of, aromatic spirits of ammonia as a diffusible stimulant

In Forchheimer's "Therapeusis of Internal Diseases" (Billings), recommended and commended by many leaders of the profession, the following recommendations of aromatic spirits of ammonia are made

In combination with other drugs as a diffusible stimulant o sustain "heart force" during short periods in lobar neumonia

As a cardiac stimulant in strophanthus poisoning, and as a ardiac stimulant in edema of the glottis

Dr De Lee recommends it as a stimulant in fainting following postpartum hemorrhage

Bethea refers to it as a stimulant, useful in syncope, asphyxia, collapse, and poisoning from narcotics and depressant agents

Musser and Kelly's "Practical Treatment" recommends it in acute fatigue, claiming that it is as effective as strychnin or atropin

Dr Edward Otis, the same work, recommends it as a stimulant in dyspnea of advanced tuberculosis, and again in threatened collapse from excessive loss of blood in hemoptysis of pulmonary tuberculosis

Dr Alfred Stengel recommends it as a stimulant in influenza

Dr Hare recommends it as a rapidly acting diffusible stimulant surpassing all others

Dr James Anders, in his article on pancreatic hemorrhage, refers to it as a stimulant

Dr James Tally refers to it as a diffusible stimulant in congestion of the lungs, and recommends it as such

These references are picked at random, and no doubt scores of other authors recommend aromatic spirits of ammonia as a stimulant

I myself have never administered a dose of aromatic spirits of ammonia, so that I take no offense at Dr Wood's reference to the physician who administered it in a case of shock. But if aromatic spirits of ammonia is useless as a stimulant, then who is to blame for its administration by the members of the profession? Is it the country doctor or the "men higher up," those who are supposed to be peers of the profession, who write and edit works which the medical journals recommend to the profession? I refer here to aromatic spirits of ammonia, but it is only one of a hundred drugs and remedies that are recommended by the leading physicians of the country as being something which they are not and as possessing therapeutic virtues which they do not possess

Is it the country doctor to whom Dr Wood refers who is to blame? No, it is not It is the authors, first, of the leading medical works, and secondly of the medical journals in recommending these works to the profession without taking the trouble to point out their fallacies

Whom, then, is the busy practitioner to believe? He has no time for scientific experiments He wants facts, and for these he depends on the medical journals and literature to which he subscribes If the statements of these are fallacious, he is not to blame Is he to accept the findings of the laboratory workers who claim that a drug possesses no therapeutic virtues, or is he to accept the word of the clinicians who assert that practically the drug possesses therapeutic virtues that the laboratory technician says it cannot and does not possess? Roland F Hotard, M D, Winter Park, Fla

[Dr Hotard's letter was referred to Dr Wood, who says]

To the Editor —I had no intention of casting any slur at the "country doctor," for I know from personal experience something of the problems he has to meet and how conscientious he is in meeting them The array of authority which Dr Hotard quotes, I am sorry to say, does not surprise me If Dr Hotard will read my paper on "Pharmacologic Superstitions" (The Journal, April 8, 1916, p 1067), he will see that I comment on the fact that men of authority in medical circles lend their commendation to therapeutic measures which cannot be defended on either scientific or clinical grounds

The medical profession as a whole—including both the city doctor and the country doctor—are not to be blamed for the leaders they have chosen to follow, but for the unreasoning blindness with which they follow those leaders I do not believe that we should accept the dictum of any one, however eminent, as final proof of the efficacy of a therapeutic measure, but that each should prove the truth for himself In the paper referred to above I have laid down at some length the criteria by which, in my opinion, the value of any remedial agent can be judged

Horatio C Wood, Jr, M D, Philadelphia

Observations on the Coagulation Test for Syphilis as Devised by Hirschfeld and Klinger

To the Editor —Cole and Chiu (*Arch Int Med*, November, 1915, p 880) made a report on some 600 serums and spinal fluids successfully examined in this laboratory by the coagulation test These tests were all made in the late spring of 1915 At irregular intervals during the summer of 1915 and up to autumn of that year the coagulation test was successfully used in conjunction with the Wassermann reaction Then it was noted that twice the amount of calcium chlorid was required for preparation of serozyme that had been used previously The reaction then began to be very questionable in its results and remained so until late this spring Since then, it has once more become quite trustworthy, and late in June sixty serums were examined consecutively and with uniform success

We were at first at a loss to explain this discrepancy, as well as the marked failure of many other American workers with the test. In addition to the work of Hirschfeld and Klinger (*Ztschr f Immunitatsforsch*, 1915, xxiv, 199), Brandt, in Munich (*Deutsch med Wchnschr*, 1915, xli, 1905) has lately reported 500 successful tests, and it has been suggested by Prof G N Stewart that the variable success with the test might be explained by the difference in diet of the sheep during the different seasons of the year and consequent changes in the calcium content of their blood or perhaps changes in some other constituents or properties of the blood The spring of 1915, during which good results were obtained by Chiu and Cole, was an early spring so that sheep were eating green grass in April and May, whereas this year the season has been later and results were found to be untrustworthy until June

Further investigations are planned in an effort to explain this presumably seasonal variation in the success of the test as well as to elucidate certain other related problems

P G Albrecht, A M,
Stanley P Reimann, M D
Cleveland

The Departments of Dermatology and Syphilis and of Pathology of the Western Reserve University and of the Lakeside Hospital

Book Plates of Physicians

To the Editor —For several years I have collected book plates, more particularly plates owned by physicians, also the book plates of medical libraries medical schools hospitals, etc, and it has been suggested to me that a check list of these ex libris would be of interest I cannot flatter myself that I possess specimens of all book plates owned by physicians, by medical libraries, etc, in the United States, and therefore take the liberty of asking, through the columns of The Journal, that physicians who own such marks of ownership for their books favor me with specimens, also informing me of the names of artists (designers, etchers and engravers)

H J Achard, M D, 4513 Dover Street
Chicago

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request.

HYDROMETRA

To the Editor —1 Can you furnish me with any data relative to hydrometra?

2 How many cases have been reported in The Journal?

H H Wilson M D, Salina Kan

Answer —1 Hydrometra (a collection of watery fluid in the uterus) is an uncommon condition, probably caused by some form of atresia of the cervical canal It occurs most frequently after the climacteric period The symptoms depend largely on the age of the patient There may be a sense of weight and fulness in the pelvis accompanied by more or less backache Phillips, in the *Journal of Obstetrics and Gynecology of the British Empire*, October-December, 1914, describes a case in a woman aged 54 who had been married thirty years and never had been pregnant Menstruation was painful and consisted of a thin, slimy discharge lasting two days every two or three weeks The patient had noticed abdominal swelling for two years She was operated on and a tumor about the size and shape of a seven-months pregnant uterus was removed measuring 20 cm (8 inches) by 18 cm ($7\frac{1}{8}$ inches) by 16 cm ($6\frac{1}{4}$ inches) after hardening It contained several pints of thin yellowish fluid The condition was caused the author believes by atresia of the cervical canal which was most probably congenital

2 There have been no cases reported in The Journal during the last five years

AMBRINE

To the Editor —Can you obtain the formula for the wax, paraffin and resin mixture referred to in an article entitled 'War Letters of an American Woman, which occurs in the current issue of the *Outlook* (Aug 2 1916)? This mixture is used in the treatment of burns by Dr Barthe de Sandfort Hopital St. Nicholas, Issy les Moulineaux, pres Paris Please do not print my name in The Journal

H V H Las Animas, Colo

To the Editor —Please give the formula of the preparation of wax paraffin and resin which Dr Barthe de Sandfort (Hopital, St Nicholas, Issy les Moulineaux pres Paris), is said to be using so successfully in cases of burns and frost bite

Inquirer Cleveland

Answer —The preparation referred to in the letter to the *Outlook*—Ambrine—is a proprietary preparation which has been on the French market for many years It is a secret nostrum the proportions of the several ingredients—"wax, paraffin and resin"—not being given As a matter of fact, there is nothing original in an application of melted resin, beeswax and paraffin, although the correspondent of the *Outlook* seems to have been carried away with the idea that it is one of the great miracles of the day There are, and have been for many years a number of similar combinations on the market Ceratum Resinae—Rosin Cerate (Basilicon Ointment) of the United States Pharmacopeia is a mixture of 50 parts of lard, 15 parts of yellow wax and 35 parts of rosin This is a very old combination The resin ointment of the British Pharmacopeia is composed of 26 parts each of resin, beeswax and olive oil and 22 parts of lard Another British paraffin cerate is composed of 2 parts of beeswax and 15 parts of paraffin It is quite probable that the preparation is not being used in the way indicated in the letter in the *Outlook* If it is used in any hospital it is probably in some isolated instance The application of such an air-tight dressing in the treatment of wounds that are extremely likely to be more or less infected is a rather questionable procedure See also Current Comment Miracles in the War Zone, The Journal, this issue, p 516

SODIUM SULPHATE AS AN ANTIDOTE FOR PHENOL (CARBOLIC ACID) POISONING

To the Editor —What is the best antidote for carbolic acid poisoning? I noticed The Journal states that alcohol and glycerin are of no value Is sodium phosphate or sodium sulphate useful and if so what dose should be given?

J W, M D, Jewell Kan

Answer —Sodium sulphate in strong solution is one of the best known antidotes for phenol poisoning Lavage of the stomach should be practiced with large quantities of a solution of sodium sulphate, 4 drams to a pint Alcohol, when used internally after phenol, probably increases the toxicity of the latter, as the alcohol renders the phenol more soluble and increases its absorption The same is true of glycerin

At one time it was believed that the action of sodium sulphate was a chemical one For instance, Holland (Medical Chemistry and Toxicology, 1915, p 460) states that sodium sulphate forms (with phenol) a relatively harmless sodium phenol-sulphonate, while Cushny (Pharmacology and Therapeutics 1914, p 136), commenting on sodium sulphate as an antidote to phenol states that this is of little value because the phenol does not combine with sulphates as such in the body but with organic sulphur compounds which are only in the process of being oxidized to sulphuric acid It has been suggested that whatever action sodium sulphate may have as an antidote to phenol may be due to some hindrance to absorption and possibly also to an added purgation

SOLUTIONS OF THORIUM SALTS FOR PYELOGRAPHY

To the Editor —1 Please give the salt of thorium which is used in pyelography

2 In what percentage is the solution used?

Please omit name

A B C

Answer —1 A neutral solution of thorium nitrate and sodium citrate is recommended by J E Burns (Thorium—A New Agent for Pyelography The Journal June 26 1915, p 2126) It is claimed to be nontoxic nonirritating and quite fluid and it presents the greatest possible degree of obscurity to the Roentgen ray

2 Burns formula is as follows

To make 100 c c of a 10 per cent solution 10 gm. of thorium nitrate are dissolved in as little distilled water as possible to this solution kept hot on a water or steam bath are added 30 c c. of a 50 per cent solution of sodium citrate the additions being made in small quantities and care being taken to shake the solution thoroughly after each addition At first after the addition of the citrate solution, a white gummy precipitate is formed which later becomes granular d finally dissolves on the addition of all the citrate solution This n is then made neutral to litmus by the careful addition of a solution of sodium hydroxid, and made up to the required f 100 c c with distilled water On filtration, a clear, limpid is obtained, which, when sterilized, either by boiling or steam un er pressure, is ready for use The stability of the solution is not affected in the least by sterilization

S R Woodruff (The Technique of Pyelography, *Surg, Gynec and Obst*, 1916, xxii, 241) colors this solution with methylene blue This makes it more easily seen through the cystoscope He states that without color it is impossible to tell when the thorium citrate solution has filled the pelvis of the kidney and is being discharged down the ureter alongside the catheter

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Missouri Kansas City, Sept 18 20 Sec, Dr J A B Adcock, State House, Jefferson City

New York Albany, Buffalo, New York and Syracuse, Sept, 19 22 Mr Harlan H Horner Chief Examinations Division, The University of the State of New York, State Department of Education, Albany

California April Report

Dr Charles B Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at Los Angeles, April 3-7, 1916 The total number of subjects examined in was 9, total number of questions asked, 90, percentage required to pass, 75 The total number of candidates examined was 30, of whom 26 passed, including 9 osteopaths, and 5 failed, including 3 osteopaths Thirty-six candidates were licensed through reciprocity Seven candidates were granted osteopathic reciprocity licenses Twenty-eight candidates, including 19 chiropractors, were granted drugless practitioner's license Fifteen chiropractors were licensed The following colleges were represented

PASSED

College	Year Grad	Per Cent
California Eclectic Medical College	(1915)	79 9
College of Phys and Surgs, Los Angeles	(1914) 75, (1915)	81, 93 2
Leland Stanford Junior University	(1914)	92 7
University of California	(1915)	88 4
Howard University	(1914)	85 7
Bennett Medical College	(1915)	75
Hahnemann Med Coll and Hosp, Chicago	(1914)	84 4
Rush Medical College	(1914) 92 5, (1915)	89 5
University of Illinois	1913)	85 1
Harvard University	(1915)	85 9
University of Michigan Homeo Med School	(1915)	87 5
St Louis University	(1915)	89
McGill University	(1915)	97 7
University of Toronto	(1870)	82 8

FAILED

College	Year Grad	Per Cent
California Eclectic Medical College	(1915)	65 2
Imperial University, Kyoto	(1910)	67 4

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
Denver and Gross College of Medicine	(1906)	Wyoming
American Medical Missionary College, Chicago	(1907)	Illinois
College of Physicians and Surgeons Chicago	(1897)	Michigan
Hering Medical College	(1899)	Illinois
Northwestern University Woman's Medical School	(1895)	Illinois
Quincy College of Medicine	(1887)	Illinois
Rush Medical College	(1906)	Illinois
Drake University	(1907)	Iowa
State University of Iowa College of Medicine	(1898)	Iowa
Medical College of Indiana	(1901)	Indiana
Indiana University	(1909)	Indiana
Kansas Medical College	(1905)	Kansas
University of Louisville	(1911)	Kentucky
Baltimore Medical College	(1897)	R Island
	(1899)	W Virginia
Tufts College Medical School	(1908)	Mass
Kansas City Medical College	(1904)	Kansas
Missouri Medical College	(1872) Missouri, (1891)	Illinois
St Louis University	(1905) Washington, (1913)	Missouri
University Medical College	(1911)	Missouri
John A Creighton Medical College	(1914)	Nebraska
Dartmouth Medical School	(188?)	New Hamp
New York Homeopathic Medical College	(1880)	New Jersey
Cleveland Coll of Phys and Surgs	(1898) (1909) (1910)	Ohio
Starling Ohio Medical College	(1913)	Ohio
University of Oregon	(1905)	Washington
Hahnemann Med Coll and Hosp, Philadelphia	(1895)	Mass
Jefferson Medical College	(1886) Pennsylvania, (1894)	Missouri
Medico Chirurgical College of Philadelphia	(1896)	Penna
Western Pennsylvania Medical College	(1903)	Penna
National University of Athens	(1900)	Illinois

Miscellany

The County Health Officers — How Walker County, Ala, Solves the Public Health Problem

No standard plan of public health administration has yet been developed It is interesting to see how one Southern county has solved its problems A few years ago the medical profession of Walker County, Ala, decided to work for the establishment of an adequate public health service (Grote, Carl A A Two Years' Public Health Campaign in a Rural County, *South Med Jour*, April, 1916, p 320) The result was the appropriation by the county commissioners of $3,000 for the purpose in 1914, and the employment of a whole-time county health officer A physician from outside the county, free from political, professional and personal entanglements, was chosen for the position The county health officer was made medical inspector of the 125 schools, and city health officer also of the seven incorporated towns within the county In each town a local physician agreed to act as assistant city health officer, a plan which is said to work well, though Dr Grote, who describes it, believes that better results would be secured if the assistant city health officers received small salaries It was recognized from the first that the activities of the department must be largely educational, directed toward securing the cooperation of the community Every effort was made to secure complete vital, mortality and morbidity statistics It was regarded as essential that complete statistics be secured during the first year, in order that preventive work done thereafter might receive the credit belonging to it, A birth rate of 32 3 per thousand of population and a death rate of 11 per thousand have been established, and cases of the more serious diseases are said to have been reported promptly and accurately As medical inspector of schools, the county health officer examines and grades the sanitary condition of the school buildings, and makes a physical examination of the children attending The decreasing rate of physical defects found at later examinations encourages the belief that this inspection has had a salutary effect Clean-up campaigns have been inaugurated in the towns, the U S Public Health Service reports that "the towns in Walker County are advanced examples of town sanitation" The corporations operating mining and industrial camps within the county have been induced to make large outlays in the sanitation of these camps A health exhibit, which has many visitors, has been installed in the county court house Whenever a birth certificate is sent in, the mother of the baby receives a bulletin on its care Lectures, newspaper articles, health bulletins and personal home visits have spread the gospel of disease prevention The U S Public Health Service and the Alabama State Health Department have cooperated in making a sanitary survey of Walker County While much remains to be done, the permanence of the work is said to be assured, and this in itself is gratifying testimony as to what can be accomplished by and for a rural county that contains earnest and enlightened public health workers Dr Grote credits the medical profession of Walker County with being "the backbone of all our activities"

The Bacterial Content of Sausages

Sausages are a popular article of diet, notwithstanding the more or less common idea that they may contain anything from good pork or beef to dog or cat meat, and the real danger that insanitary methods of preparation may affect their fitness for human food Some investigation of sausages has been made in Germany, where the subject is rendered of special importance by the common practices of eating sausages raw and of making them of liver, spleen and other viscera which are particularly likely to contain pathogenic bacteria In France and England also, some studies have been made on the subject Yet, in this country at least, they seem to have received little attention from the student of foods Three classes of dangers from sausage poisoning have been recognized (1) from the ordinary bacteria of decomposition (generally not severe), (2) from members of the *enteritidis* group (a real source of danger), and (3) from the toxins of *Bacillus botulinus* (seldom encountered except in Germany)

Recently, William E Carey of the Department of Hygiene and Bacteriology, University of Chicago, has examined thirty-four samples of pork sausage bought in meat markets, some sanitary others highly insanitary, in various parts of Chicago (The Bactericidal Examination of Sausages and Its Sanitary Significance, *Am Jour Pub Health* February, 1916, p 124) The purpose was to determine (1) the number of bacteria present per gram of meat, (2) the prevalence of fecal or pathogenic organisms, (3) the presence of adulterants, (4) the prevalence of the use of preservatives, (5) the influence of sanitary marketing on the bacterial content, and (6) the effect of cooking on the bacterial flora An effort was made also to determine (7) the influence of the sausage casings on the bacterial count

1 The number of bacteria found varied from 1,538 400 to 2 500 at 37 C (98 6 F) for twenty-four hours In view of the number of factors which may influence it, Carey attaches little importance to the bacterial count

2 The *Bacillus coli* was found in thirty of the thirty-four samples, other intestinal organisms were present in a number of cases, possibly indicating careless and insanitary methods of manufacture *Proteus vulgaris* was present in one third of the samples This may indicate the use of old meats in which decomposition has begun but, in Carey's opinion, should not be given too much importance in the absence of control tests on meats known to be fresh Organisms biologically related to but not identical with the *enteritidis* group were found in 25 per cent of the samples

3 Starch was present as an adulterant in nineteen of the thirty-four samples, the percentage varying from 2 to 12 per cent. Of the twenty-one samples from shops in the better residence districts, nine, or 38 per cent, contained starch, of the thirteen samples from poorer districts, starch was present in ten, or 77 per cent The samples from the poorer districts also contained the larger percentages of starch

4 Sulphites were found in seven out of the thirteen samples from the poorer shops, and in three out of a series of fifteen samples obtained from the better-grade shops

5 Curiously enough, the bacterial counts ran no higher in samples from the insanitary shops on the west side than in those from shops above the average in respect to sanitation, in fact, the average bacterial count for the latter group was lower This, of course, does not indicate that insanitary shop conditions are of no importance, but merely that a great many other factors enter into the hygiene of sausages The low bacterial count in the poorer shops may have been due to the use of sulphites, yet an increase in the number of bacteria does not seem to be correlated with absence of sulphites

6 Cooking was found to destroy a large percentage of the bacteria present Thoroughly cooked sausage was sterile

7 While in five out of seven samples the bacterial count of scrapings from the casings was greater (at 37 C and at twenty-four hours) than that from the interior of the sausage, Carey believes that the use of properly prepared skins can not be considered to increase the bacterial count or the danger from pathogenic bacteria

These results, even though they disclose no startling dangers in sausages, indicate that sanitary handling and careful cooking are of importance

Ambard's Formula for Determination of Renal Function

An interesting study of Ambard's laws with instances of their application in the clinic is published by F Leza in the *Revista de Medicina y Cirugia de la Havana* of recent date, p 253 (Ambard's laws were described in THE JOURNAL Feb 5 1916, p 416) He regards the Ambard formula as the most rational method for exploring the functional capacity of the kidneys, and expatiates on the fact that when the prostate is causing trouble, the kidneys are usually pathologic This is the explanation for many of the disasters after operating on the prostate, and hence prostatectomy is not advisable when the Ambard coefficient is above 0 150 He mentions that chloroform raises the coefficient, showing that it locks up the kidneys, while ether renders them more permeable at first The original Ambard formula has been simplified by Balavoine and Onfray, who compare the output of urea during a given interval with the kilograms of body weight Leza regards this modification as an improvement, representing better the actual functioning of the organism In his tabulated fourteen cases, mostly patients with hypertrophied prostate, all recovered after operative treatment when the coefficient had been below 0 092, while none survived with coefficient of 0 105 or over, with one exception, in which the figure had been 0 127, but dropped to 0 092 after the operation

Book Notices

The Endemic Diseases of the Southern States By William H Deaderick M D and Loyd Thompson M D Cloth Price $5 Pp 546 with 117 illustrations Philadelphia W B Saunders Company 1916

As the title indicates, the authors consider those diseases which occur particularly in the southern United States malaria, blackwater fever, pellagra, amebic dysentery, hookworm disease, and diseases due to other intestinal parasites The discussion of each disease includes a historical introduction and sections devoted to etiology, pathology, clinical history, diagnosis, prognosis, prophylaxis and treatment The authors have not limited themselves wholly to the question as it concerns the Southern States, but discuss the occurrence of the diseases elsewhere and their effects on other races The book is well illustrated, and the technic involved in various laboratory examinations associated with these diseases is given in detail The article on the treatment of malaria is exceptionally sane, the authors pointing out that the chief reliance should be placed on quinin, and mentioning the use of salvarsan in certain quinin-fast cases In the discussion of pellagra the authors take up the various causative theories and state the arguments for and against each of the theories without taking a definite stand in behalf of any one As the treatments of pellagra are as varied as the theories of etiology, a general treatment based on all of them is outlined but suggested special treatments are also adequately desired The authors append to the work a list of 547 references to the subjects discussed, covering modern articles in all languages For the diseases included in it the book is a modern, rational, scientific reference work

The Art of Anesthesia By Paluel J Flagg M D Lecturer in Anesthesia Fordham University Medical School Cloth Price, $3 50 net Pp 341 with 136 illustrations Philadelphia J B Lippincott Company 1916

This strikes one at once as having been written by one who knows the subject from a practical standpoint The chapters on methods of administration of the various anesthetic agents are full of hints to beginners, they are valuable because practical The chapter on signs of anesthesia will afford students of the subject much of value in the physiology of anesthesia The illustrations, especially those of posture favoring respiration and those illustrating means of resuscitation, are excellent Chapter IV covers the various methods of ether administration, thoroughly giving the special advantages of each method as well as its disadvantages Short chapters on ethyl chlorid and chloroform are given space, apparently rather apologetically, for both are gradually passing into the background of disuse Under the subject of nitrous oxid gas and oxygen too much space is given to illustrating various forms of apparatus to the exclusion of methods of administration signs and symptoms dangers, etc, which the author covers so well in his chapter on ether The book is a valuable contribution to the art of anesthesia, and in its originality of thought is quite distinct from those works which appear to be a collection of monographs which the reader has read previously

Medicolegal

No Injunction Against Commenting on Medicine, Testimonials and Business

(Willis vs O Connell (U S), 231 Fed R 1004)

The United States District Court, at Mobile, Ala, holds that it must deny the injunction the plaintiff asked for to restrain the defendant from publishing in his newspaper (the Mobile *Tribune*) comments and criticisms reflecting on the plaintiff, on a proprietary medicine ("Tan-lac") and the business of the plaintiff in selling the same, on the testimonials commending the efficacy of the medicine, and on the authors of such testimonials The court says that the plaintiff had the exclusive distributing agency in Alabama and five other Southern states of the company engaged in the manufacture of Tan-lac, the sale of which in these states had aggregated 500,000 bottles during the preceding twelve months Reference was made in one of the published articles made exhibits to the bill to excerpts from THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION which had been previously published, exposing Tan-lac However, a court of chancery will not grant an injunction to restrain a libel, but for the protection or vindication of his good name leaves the citizen to his remedy at law—to a civil action, or criminal prosecution, or both Nor was the plaintiff's case helped by the averment that the articles published and to be published were and would be libelous, defamatory and scurrilous articles regarding Tan-lac and those who have given testimonials regarding its curative powers, and that the purpose and intent of the defendant in the publication of such articles was, and would be, to hold Tan-lac and the plaintiff and those who have endorsed Tan-lac and testified to its beneficial effects up to ridicule, contempt and public scorn and derision for the sole purpose of injuring the sale of said medicine, and that it would make it difficult if not impossible to secure further testimonials, to the great injury of the property rights of the plaintiff Neither did the averment that the defendant was financially unable to respond in damages add any force to the plaintiff's case The court thinks that perhaps it may be justified in taking a further view of this case, that is to say, among other things Has not the defendant the right to question the efficacy of the plaintiff's remedy—to expose it as a nostrum, if it be a nostrum? May not a newspaper publisher expose, if he can, the plaintiff's medicine—if it be a quack medicine? May he not in good faith tell the public of the dishonesty and fraud practiced on the public? Is there anything so sacred about proprietary medicines, or those who cooperate in a plan to further their sales and increase the profits of the vendor, that a newspaper man shall be required to cease publishing what he believes to be the truth, or cease to attack the business methods of medicine vendors, when and where he believes the cooperating testimonials, in furtherance of the scheme to sell such medicine, are sinister and not founded in truth? The court thinks he may do so, but within the limits of the law which prescribes penalties, civil and criminal, for libelous publications Again, why may not any man publish his warning to his fellow sufferers not to use what he honestly believes to be a nostrum, but rather, on the other hand, to take the advice of a competent physician and his medicine also, if any be prescribed? The allegation of the plaintiff that some medicinal compounds are sometimes prescribed by physicians cannot aid the plaintiff in his application for an injunction It may be conceded that such practice is sometimes followed, but it must not be forgotten that in such cases it is followed, not without the benefit of the learning and discriminating judgment of the man specially taught and skilled in diagnostics and well informed as to the therapeutic value of drugs, and their use or harm when rightly or wrongly compounded or administered in proper or improper cases Every wise layman ought to know that the physician uses his learning, experience and judgment in prescribing any medicine, simple or compounded Why may not the newspaper man advise people to consult a physician rather than take a widely advertised remedy, or why may he not suggest that a man afflicted with an exceeding great thirst ought to confine himself, preferably, to the use of water, milk and grape juice, or take a "high-ball," or a "whisky straight," or a compound made by himself of "corn," "bourbon" or "rye" and water and sugar, rather than drink a mixture of aloes, glycerin, licorice and gentian, advertised and sold for whatsoever purpose under whatsoever name? The court has reached the conclusion that the motion to dismiss the plaintiff's bill for a want of equity must be granted

Evidence Sufficient to Support Verdict for Physician

(Bolar vs Browning (Ky), 181 S W R 1109)

The Court of Appeals of Kentucky, in affirming a judgment in favor of the defendant, who was sued for alleged malpractice, says that counsel for the plaintiff devoted most of his brief to an attempt to show that the verdict for the defendant was flagrantly against, and not supported by, the evidence But the court thinks he overlooked the fact that the real issue was not the extent or permanency of his client's injury, but was whether or not the alleged dislocation was present when the defendant treated the case, and whether or not the defendant exercised skill and care in making his diagnosis The plaintiff's testimony tended to prove that his shoulder was dislocated at the time the defendant gave him treatment, but the defendant testified positively that such was not the case The defendant's testimony was that he saw the plaintiff but twice, the first time on the day his shoulder was injured, and again the next morning, that he was called to the plaintiff's house to see his children, who had the measles, and that he saw the plaintiff only incidentally, but that he made a thorough examination and applied a proper test to ascertain whether or not the shoulder was dislocated, that he felt sure it was not, but told the plaintiff that if his arm did not get along all right to let him know The plaintiff admitted that the defendant saw him only twice, but claimed that the first occasion was the day he was hurt, and that the next occasion was about three weeks thereafter He said that the defendant was called especially to see him, and that his treatment of the children for measles was merely incidental to the visit to him He did not deny that the defendant told him to let him know if he did not get along all right, but said that, if he did tell him, that he did not remember it, but he admitted that, although living within a few miles of the defendant's residence, he never again had the defendant to see his arm, and that on the few occasions when he did see the defendant he did not mention to him that there was any trouble with his arm One occasion when he did see the defendant and did not mention any trouble with his arm was about six months after he claimed the injury occurred, an occasion when the defendant was attending his wife in childbirth The verdict of the jury in favor of the defendant in the light of this testimony could not be said to be unsupported by the evidence, or so flagrantly and palpably against the evidence as to appear to have been given under the influence of passion and prejudice A physician who made a Roentgen-ray examination of the condition of the arm about a year and a half after treatment was rendered by the defendant, but who stated that he had not made, and did not have, a picture from the plate made by him in the examination, could describe the condition of the arm at that time as revealed to him by the examination, because there was no Roentgen-ray picture in existence, and the evidence was therefore not objectionable on the ground that the roentgenogram would have been the best evidence of the condition of the arm at that time Moreover, under Section 315 of the Civil Code, requiring for a continuance on account of the absence of evidence an affidavit showing its materiality and due diligence to obtain it, etc, in the absence of such an affidavit it was no error to refuse a continuance because the physician did not make or produce the Roentgen-ray picture as the plaintiff alleged he expected him to do The provisions of Section 315 are also applicable to such evidence as this, and, not having complied with, the plaintiff was not entitled to a continuance

Society Proceedings

COMING MEETINGS

Colorado State Medical Society, Glenwood Springs Sept 5 7
Michigan State Medical Society, Houghton, Aug 15 17
Oregon State Medical Association Portland Sept 9 10
Utah State Medical Association Salt Lake City Sept 12 13

AMERICAN ASSOCIATION OF ANESTHETISTS

Fourth Annual Meeting held in Detroit June 12 1916

(Concluded from page 467)

Team Work

DR CHARLES W MOOTS, Toledo Ohio Dr E J McKesson and I have been trying to devise some method that would make the results of anesthesia less serious With this end in view, we have been studying the use of gas, and have arrived at the following conclusions Nitrous oxid-oxygen is an anesthetic that is extremely dangerous in unskilled hands, but one that is by far the safest of any in skilled hands It produces anesthesia without injuring the body cells It may be used in all abdominal operations especially in cases requiring great length of time Preliminary treatment is of the utmost importance, and should not consist of atropin This method favors the production of the best psychologic condition of the patient and predisposes to a higher percentage of cures It favors the gradual production of anesthesia which is to be desired While the degree of M D carries with it the legal right to administer anesthetics there is a certain special training that is needed to give the moral right The surgeon should feel that he is dealing with a living organism and not with a mechanical device, and should remember that rough treatment may kill the patient.

DISCUSSION

DR WALTER M BOOTHBY, Boston At our hospital, the recovery room was at one time quite cold and drafty, and there was a series of four or five pneumonias following operation We had had some cases of this kind before that but I had not had any in the cases in which I administered the anesthetic The staff attributed this to the kind of anesthesia I was using but it was not The pneumonia was due to the exposure of the patient after the operation Since then, by keeping the recovery room warm and being sure that the patient was well covered up before being taken back to the ward, we have succeeded in improving matters so much that we have had but one case of ether pneumonia this year

DR C C McLEAN, Dayton, Ohio If this paper had been presented to the surgeons, instead of the anesthetists, we probably should have reaped a greater reward In giving nitrous oxid as an anesthetic, it is difficult if the operator is continually disturbing the intestines and yet that is what we often see, thus the surgeons will condemn the best method of anesthesia known I should like to know what percentage of vomiting there was in the cases of Dr Moots

DR G W KENNEDY, Sharon, Pa The time is not so long since the anesthetist bore the same relative importance to the surgeon that the printer's devil bears to the editor of the paper We find now, however that people are beginning to ask, 'Who is going to anesthetize me?' as well as, 'Who is going to operate on me?"

DR CHARLES W MOOTS, Toledo, Ohio The question is how to reach the surgeon I believe that the men who have had a broad training are going to get into the spirit of not having a method which they feel bound to defend, but that they will be open to suggestions coming from meetings like this With regard to vomiting, our cases during the last year ran less than 4 per cent , and of that percentage, the majority had only slight vomiting on the table, and none afterward

Alcoholism and Drug Addiction as Complicating Factors in Anesthesia

DR. F H McMECHAN Cincinnati The alcoholic patient or the drug addict coming to operation must be accepted as such The greatest peril lies in not knowing whether either complication exists In either condition, it is pernicious to attempt a so called cure just preceding operation or during convalescence The dangers of alcoholism as a complicating factor of anesthesia are dosage, imperiling or low-grade, continuous cyanosis, exaggerated blood pressure, due to asphyxia and resulting in abrupt cardiac arrest To avoid these I use a chloroform-ether mixture administered by the open drop method with concomitant administration of oxygen Anesthesia is induced with ethyl chlorid The drug addict presents almost the same difficulties as the alcoholic, so far as the administrative technic is concerned, especially when a proper amount of morphin has not been given With the drug addict in his usual state of saturation, however, the dangers of anesthesia are overdosage, due to delayed elimination and deoxygenation, resulting in acidosis The elimination of the anesthetic by the rebreathing method of Gatch is essential

DISCUSSION

DR E J McKESSON, Toledo, Ohio The trouble is that we do not know when we have an alcoholic Therefore, it has been my practice in the last two or three years, to divide the preliminary dose into two parts, giving one part two hours before the operation By starting the preliminary medication long enough beforehand to show the effect of the first dose, you will discover a great many patients who are addicted to the use of morphin or opium in any of its forms

DR CHARLES K TETER Cleveland The patients should have the usual dose of the drug they are addicted to on the day of the operation

DR C C McLEAN Dayton, Ohio I wonder whether any of you have had any experience with a person who has been in the habit of using ether and chloroform I had, a few weeks ago when I was asked to give the anesthetic in a case in which they had failed to etherize the patient the day before I did this and the only result was an exaggerated excitement stage I got the patient anesthetized, but not enough to show on the removal of the mask, that we could insert the gag and go ahead with the operation We had to stop The patient was a drug clerk, who had been in the habit of inhaling chloroform and ether

DR F W NAGEL, Montreal I was going to ask whether Dr McMechan had had any experience with a man who had been a drug fiend, but had given it up several years before the operation I have had a number of cases of that kind, and in each case I had considerable trouble in the induction of anesthesia

DR F H McMECHAN, Cincinnati Concealment of alcoholism or drug habituation is the thing to be feared It is surprising how well a morphin addict will stand the most grueling operative procedure, if he has managed to conceal about his person or the bed a sufficient amount of morphin to carry him through his stay in the hospital This serves to emphasize Dr Teter's remark that the usual dose of alcohol or opium should be administered before the operation Reports have come in from several of the base hospitals in France stating that certain surgeons and anesthetists are having considerable difficulty in anesthetizing ether drinkers Regarding the length of time that the alcoholic taint, so far as it pertains to anesthesia, persists, I would say that I have had Dr Nagel's experience in men who had reformed and, according to their statement, had not touched liquor for ten years When you have an alcoholic who is in delirium tremens or coma and requires an operation, try reducing the intracranial pressure by spinal puncture and the use of bromid intraspinally After the operation is finished and the patient develops delirium tremens, use the same technic, and it will spare you hours of struggling The effects are frequently visible in an hour after the use of the remedial measure

Ether-Oil Colonic Anesthesia

DR. WALTER LATHROP, Hazelton, Pa The method is valuable in cases in which fear is a prominent element, as in hyperthyroidism, and in asthmatic and bronchial troubles, especially in that condition known as miners' asthma It is contraindicated in rectal diseases or when pain is caused by the injection The postoperative effects are excellent, with nausea and vomiting less than by inhalation In abdominal operations, there is usually freedom from pain for some time after the patient is returned to bed, although consciousness has been fairly regained The method is especially valuable in head and neck work It taxes the lungs and kidneys less than other methods of anesthesia The operation can be performed without the patient's realizing it, so that there is little fear on the patient's part as compared with that shown in other methods Crile's technic can be used, if desired We have employed this method in 165 cases of thyroidectomy and in sixty-nine cases of abdominal operations

DISCUSSION

Dr J T King, New York I wish to report a case I had last summer, in a boy 7 years old, who had very large, septic, toxic adenoids He had been born a "blue baby" with a patent foramen ovale The normal color of the patient was a purple cherry Dr Gwathmey thought that he could give the anesthetic safely, using oil and ether by rectum The operation was performed safely His color was not very different from what it was ordinarily, especially when excited He was still under the influence of the anesthetic when taken back to his room, and when he waked up he did not know that an operation had been performed

Dr C J Peck, New York My last operation under this method of anesthesia was a long and tedious one on the breast of a patient who was very nervous and dreaded the anesthetic more than anything else It was given in bed, and she went off to sleep She had no vomiting For a long time we were unable to convince her that the operation had been performed In breast cases and operations on the neck and face, it is an ideal method of anesthesia

Relative Value of So-Called Warmed and Unwarmed Ether Vapor

Drs B F Davis and F B McCarty, Chicago Even if warmed anesthetic vapors are as effective as has been claimed in preventing or compensating for heat loss, they are, with two deaths from hyperthermia to their credit in a relatively short series of cases, too dangerous for general use We maintain that there is no evidence that warmed air-ether vapor gives a greater margin of safety in anesthesia than unwarmed, that the preliminary warming of the vapor does not decrease pulmonary irritation, and that the warmed vapors may be distinctly uncomfortable for the patient during the inhalation of the anesthetic We refuse to accept the conclusions of Gwathmey regarding the lower toxicity of warmed vapor, on account of certain experimental errors that we believe his work to contain On the basis of our own experimental work and of theoretical considerations, we contend that, gram for gram of ether, there is no difference in the efficiency or toxicity of warmed and unwarmed vapor The heat lost by a patient during a general anesthesia is no greater in amount than that lost during natural sleep Unlike the case in natural sleep, however, if the patient is not sufficiently covered, the temperature may fall excessively, because the patient cannot be wakened by the cold, and so caused to care for himself The amount of heat necessary to warm the average anesthetic vapor to body temperature is far too small to account for the heat lost by the average patient Finally, from the standpoint of simplicity and general adaptability, the unwarmed vapor is superior

DISCUSSION

Dr Frank W Pinneo, Newark, N J I think the authors have reached a wrong conclusion in attempting to show that unwarmed air is just as good as warmed vapor, because there are no chest complications, for there are other complications that enter into the question In regard to toxicity, Gwathmey's experiments have shown that animals are less easily killed by warmed vapor

Dr James T Gwathmey, New York In our experiments the anesthetics fell into about the same relation that the European and American statistics place them as regards the safety line We also found that if we heated ether and chloroform, we had an anesthetic almost as safe as nitrous oxid and oxygen When chloroform was given by an apparatus in which we had constant rebreathing and warmth, the subjects went under it as they do under nitrous oxid and oxygen, and came out the same way when the mask was removed

Dr Walter M Boothby, Boston The reason that the animals studied by Dr Gwathmey took longer to kill with the warmed vapor was that warmth caused increased volume and less tension The animals were not getting the ether to the same volume, and, naturally, they took longer to be killed

Dr B F Davis, Chicago Practically all ether vapor administered is administered at body temperature, whether in the open mask or in a rebreathing bag The latter would be at room temperature, about 70 F Therefore, it is very little work for the body to heat the vapor the rest of the way As none of the vapor used is really cold, it is hard to see why it should be irritating on account of its temperature

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Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Diseases of Children, Chicago

August, XII, No 2

1 *Subcutaneous Injections of Magnesium Sulphate in Chorea H Heiman, New York—p 109
2 *Study of Normal and Pathologic Cerebrospinal Fluids in Children M R Johnston, St Louis—p 112
3 Some Early Symptoms Suggesting Protein Sensitization in Infancy B R Hoobler, Detroit—p 129
4 Creatinin and Creatin Content of Blood of Children B S Veeder and M R Johnston, St Louis—p 136
5 Energy Metabolism of Cretin F B Talbot, Boston—p 145
6 Tendency of Diphtheria Bacillus to Localize in Upper Respiratory Tract D O Walthall, Ann Arbor, Mich—p 149
7 *Infantile Scurvy Its Influence on Growth A F Hess, New York—p 152
8 Resume on Infectious Diseases A H Beifeld, Iowa City, Iowa—p 166

1 Injections of Magnesium Sulphate in Chorea—Five successive patients with chorea were treated by Heiman with repeated subcutaneous injections of magnesium sulphate. In every case a 25 per cent sterile solution was used The dose ranged from 0 01 gm magnesium sulphate per kilogram of body weight (that is, 0 04 c c of the 25 per cent solution) at the beginning of treatment, with a daily increase to 0 2 gm magnesium sulphate per kilogram of body weight (that is, 0 8 c c of the 25 per cent solution) at the termination of treatment The actual amounts of solution used daily were from 3 to 30 c c The injections were given three times daily for from ten to fifteen days, with the ordinary record syringe, into the back loins and buttocks of the patients In only one of the five patients treated by this method was there a marked improvement after the series of injections, and in this case the choreic movements gradually diminished, the child became less irritable and general improvement was noted In the four other cases there was no improvement, the magnesium sulphate having had apparently no effect whatever on the psychomotor system The results of the treatment in this series of cases was not sufficiently promising in Heiman's opinion to justify a continuation of the treatment

2 Cerebrospinal Fluids in Children—As an index of pathologic change in the cerebrospinal fluid Johnston found that the colloidal gold reaction is more delicate than any other test employed He believes that a positive Lange reaction may be considered sufficient evidence of a pathologic process affecting the cerebrospinal nervous system, though the fluid in question is negative to all other tests A normal fluid causes no reduction of the colloidal gold The presence of globulin in the cerebrospinal fluid, as determined by the tests of Noguchi and Nonne is indicative of an inflammatory process but is of no specific import A negative globulin test may occur in a pathologic fluid The quantitative estimation of organic substances by the reduction of tenth-normal potassium permanganate shows such wide variations in normal fluids and those with slight pathologic change that it has no value as a diagnostic measure The qualitative presence of dextrose in the cerebrospinal fluid as determined by the reduction of Fehling's solution is of little value in the diagnosis of lesions of the central nervous system The specific diagnostic import of a given test is dependent on the character of the process causing the change in the fluid examined Thus the cell content and bacteriologic findings are final in purulent and tuberculous meningitis In the colloidal gold test the characteristic syphilitic zone reaction in hereditary syphilis is sufficient to establish the actual or potential existence of a syphilitic involvement of the central nervous system

7 **Infantile Scurvy**—Although pasteurized milk is to be recommended on account of the security which it affords against infection, Hess directs attention to the fact that we should realize that it is an incomplete food Unless an antiscorbutic such as orange juice the juice of orange peel or potato water is added infants will develop scurvy on this diet This form of scurvy takes some months to develop and may be termed subacute In order to guard against it infants fed exclusively on a diet of pasteurized milk should be given antiscorbutics far earlier than is at present the custom, even as early as at the end of the first month of life

Archives of Pediatrics, New York

July XXVIII No 7

9 *Meningitis in Newborn and in Infants Under Three Months of Age. H Koplik New York—p 481
10 *Further Experience With Homogenized Olive Oil Mixtures M Ladd Boston—p 501
11 Group of Pertussis Cases Occurring Simultaneously in One Family P J Eaton and E B Woods Pittsburgh—p 513
12 Treatment of Paralysis Following Acute Anterior Poliomyelitis W F Schaller San Francisco—p 516
13 Creolin in Scabies in Infant D W Montgomery, San Francisco—p 525
14 Use of Albumin Milk I L Meininger San Francisco—p 529
15 Problem of Dental Hygiene in Children G S Millberry San Francisco—p 533

9 **Meningitis in Newborn and Infants**—Meningitis in the newborn, Koplik claims is not only badly described in the literature, but a careful perusal of the cases thus far published leads to the impression that the condition is overlooked or, at first, scarcely suspected The reason for this is at first glance evident The newborn does not react to infection in a way to draw the attention Many cases escape recognition because the onset is insidious, and it is only after the symptoms have developed to the extent of giving the picture of cerebral pressure that the case is suspected to be one of meningitis The newborn reacts very slowly to cerebral irritation, and the picture of meningitis is at first masked by rational symptoms which are apt to mislead The objective symptoms which would lead to suspect a meningitis in the newborn are first convulsions, repeated with convulsive movements of the eyes and muscles of the extremities in the intervals fever, constant restlessness, with vomiting, with this a suppressed groaning respiration and a temperature curve, at first very high then gradually remitting or intermitting and finally, falling to or near the normal Most of the cases after a week's duration develop a rigidity of the neck and a drawing back of the head, which indicates clearly the nature of the affection In other words opisthotonos is slow in developing The most frequent diagnosis apt to be ventured in meningitis is tetany

Of 12 cases in which the spinal fluid was examined bacteriologically, 4 contained streptococcus in pure culture 3 pneumococcus 4 meningococcus and 1 coli bacillus the last as a result of systemic infection from a coli pyelitis The prognosis is very grave All the streptococcus patients died, as well as the pneumococcus patient The coli case developed hydrocephalus and died later in infancy, whereas all but one of the meningococcus patients died The only one which recovered did so with hydrocephalus

10 **Experience with Homogenized Olive Oil Mixcures**—As Ladd's experience had convinced him that olive oil homogenized in milk mixtures was well tolerated in the diarrheas due to indigestion and fermentation he was interested to see if it could not be used safely in the early days of convalescence from infectious diarrheas to supply additional calories and prevent or lessen the loss of weight which occurs in such cases The general scheme of treatment was as follows After the initial period of catharsis and starvation, [illegible] milk diluted two thirds or one half, was given If the infecting organism proved to be of the Flexner or Shiga type dextrimaltose was added up to 4 or 5 per cent and sometimes barley water If the gas bacillus was present no carbohydrates were added After a period of several days when the acute febrile disturbance showed [illegible] adding olive oil was homogenized with the [illegible] milk in percentages of 1 00 1 50 and if well tolerated 2 00 thus adding considerably to the caloric value of the food The results briefly summarized were as follows There were 19 cases of infectious diarrhea on the service 15 of Flexner bacillus type 1 of the gas bacillus and 3 undetermined Four patients died giving a mortality of 22 per cent about the same Ladd was informed, as in the other services Of the 15 patients that lived 8 were in the hospital on an average of twenty-one days each and lost over their entrance weight an average of 15 ounces Seven were in the hospital on an average of fourteen days each, and gained an average of 10 7 ounces over their entrance weight The average net loss of all 15 surviving cases was therefore only 3 ounces over their entrance weight

Boston Medical and Surgical Journal

July 27 CLXXV No 4

16 Hemoptysis as Symptom F T Lord, Boston—p 113
17 Common Sense and Consumption J B Hawes, 2d Boston—p 11
18 Sprain and Sprain Fracture of Wrist Joint A C Burnham New York—p 118
19 Study of Peptic Ulcer From Diagnostic Point of View R H Philbrick Northfield—p 121
20 *First Case in Which Abdominal Surgery was Suggested for Relief of Epilepsy H Powers Brookline and F H Lahey, Boston—p 124
21 Prolapsus Ani in Adults T C Hill, Boston—p 127
22 Scientific Research in Chronic Medicine From Physiologic Point of View F H McCrudden Boston—p 129
23 Epidural Intraspinal Tumor of Two Years' Duration, Operation, Recovery W E Paul Boston—p 133
24 Pistol Shot Wound of Stomach C A Atwood Taunton—p 136
25 Pathology of Clavus (Soft Corn) H M Chase, Boston—p 134

16 **Hemopytsis as Symptom**—In the attempt to reach a more definite conclusion as to the meaning of this symptom, Lord reviewed 549 clinical cases of hemoptysis and 307 instances of hemopytsis with necropsy Excluding from consideration all cases in which the diagnosis has not been established there were thirty instances in which hemoptysis was an initial event unpreceded or followed by pulmonary or other symptoms or accompanied only by cough with or without scanty expectoration In this number are included twenty clinical cases with sputum positive for tubercle bacilli at the time of the bleeding or later in their course The ten remaining were necropsy cases and nine showed obsolete inactive or active pulmonary tuberculosis The single exception to the tuberculous origin of hemoptysis in this group illustrates an uncommon cause This was the case of a man of 37 who entered the hospital in 1904 with a history of winter cough without expectoration for three years He had an abundant hemoptysis three days before entrance, and death occurred two days after admission from a recurrence of the hemorrhage At necropsy syphilitic ulceration of the trachea and bronchi with rupture of a large branch of the pulmonary artery into the right primary bronchus, was found

Of the various causes of hemoptysis in the probable order of frequency pulmonary tuberculosis doubtless occupies first place in consideration of the high incidence of this disease and the occurrence of hemoptysis in about 60 per cent of all cases at some time in their course It is represented among the 307 necropsy cases at the Massachusetts General Hospital by only 27 cases, owing to the usual exclusion of patients in the active stage of the disease from the wards of the hospital Chronic passive congestion occupies second place, but heads the list of the necropsy series with 105 cases Then follow lobar (not bronchopneumonia) pneumonia, with 100 cases pulmonary infarction with 48 cases, nontuberculous pulmonary suppuration with 14 cases, aortic aneurysm with 7 cases, new growths of the lung with 5 cases and ulceration of the trachea and bronchi due to syphilis in one case

Copious bleeding is seldom seen apart from pulmonary tuberculosis, occasional instances of abscess and gangrene, ruptured aneurysm, and ulceration of the trachea and bronchi Other causes than those enumerated are rare and were not found among the necropsied series The records are of interest in a negative sense in their failure to confirm the still too prevalent belief that vicarious menstruation is an adequate cause of hemoptysis, no example of which was found in the necropsy series This and other evidence indicate that it cannot properly be regarded as a cause apart from some pulmonary lesion which is tuberculous in the great majority of the cases

20 **Abdominal Surgery Suggested for Relief of Epilepsy**—In the case cited by Powers and Lahey intestinal stasis was believed to have some bearing on the existence of the epilepsy The possibility of relief through surgery suggested itself The patient was a typical epileptic as described in the textbooks Eight years of treatment by the various bromids and by the salt free diet, the milk and vegetable diet, etc, was a complete failure Finally, in September, 1914, a colectomy was performed After his recovery from the operation, he was unwilling to be placed on a regime, ate everything that he cared for and, after his old habit, he bolted and gormandized Notwithstanding this, he remained free from attacks until December, 1914 In March, 1915, he had another attack He was then willing to submit to treatment and was placed on a diet This diet is not vegetarian or salt free and in it the abuse of milk is avoided Briefly, it excludes fried food, fresh white bread, pastry, beans, milk, except in moderate quantities only with meals, and uncooked fruit except oranges, figs and dates He has remained more than a year without an attack and without vertigo or any so-called epileptic equivalent During that time he has been in business and he is more keen and energetic than the average individual No discomfort has resulted from the operation except that he has two unformed movements daily

25 **Pathology of Clavus (Soft Corn)**—Clavus, or soft corn, presents on the surface, an area of thickened epidermis, moistened and at times macerated by discharge of lymph through an opening in the thickened area This opening according to Chase leads through a direct or indirect tortuous channel into the subcutaneous areolar tissue This lymph channel may or may not connect with a tendon sheath It varies in length, according to its tortuous direction, from one to one and one-fourth inches in depth In none of his cases has Chase been able to probe the sinus until the thickened epidermal layer has been removed The treatment advocated is dissection and excision of the lymph sac If the wall tears and is too thin to excise, wipe with phenol and insert small wick for forty-eight hours Transverse adhesive strappi[illegible] entire length of the metatarsals Keep the toes [illegible]ge gauze dressing as necessary, lymph secrepa[illegible] slight or excessive for several days Healing era[illegible] and permanent cure

[illegible] Cleveland Medical Journal

June XV, No 6

[illegible] Life L T Troland, Cleveland —p 377
[illegible] Bladder A P Heineck, Chicago —p 388

[illegible]ssociation Journal, Augusta

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[illegible]an, Atlanta —p 41
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30 *Gastro Enterostomies Performed During Two Extremes of Life E C Davis, Atlanta —p 50
31 Goiter Based on Study of Two Hundred and Six Cases E G Jones, Atlanta —p 54
32 Report of Unusual Case of Tubal Pregnancy Terminating in Rupture E M Stokes, Jakin —p 61

29 and 30 Abstracted in The Journal, May 6, pp 1490 and 1491

Illinois Medical Journal, Chicago

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33 Military Preparedness From Surgical Standpoint G N Kreider, Springfield —p 1
34 Importance of Postnasal Space as Focus of Infection in Infants and Young Children, Report of Cases G E Baxter, Chicago —p 5
35 After Effects in Nose and Throat of Usual Winter Cold O H Maclay, Chicago —p 10
36 Medical Inspection of Schools R D Luster, Granite City —p 13
37 Problem of Vaccine Therapy G H Sherman, Detroit —p 14
38 Pregnancy Complicated by Syphilis H A Kraus, Chicago —p 18
39 Physicians Accounts C M Kingery, Chadwick —p 20
40 Blood Ferments in Pregnancy F H Falls, Chicago —p 22

Indiana State Medical Association Journal, Fort Wayne

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41 Deviations of Nasal Septum and Submucous Operation W F Clevenger Indianapolis —p 277
42 *Diseases of Gallbladder and Their Influence on Adjacent Organs W H Williams Lebanon —p 283
43 *Chronic Suppurative Mastoiditis Accompanied by Intracranial Pressure, Report of Case E J Lent, South Bend —p 290
44 *Defenses of Upper Respiratory Tract and Their Preservation W N Culmer Bloomington —p 294
45 Radium Treatment of Epithelioma T C Kennedy, Indianapolis —p 298

42 Abstracted in The Journal, Nov 20, 1915, p 1846

43 and 44 Abstracted in The Journal, Oct 30 1915 pp 1576 and 1577

Journal of Laboratory and Clinical Medicine, St Louis

July, I, No 10

46 *Simple Interpretation of Polygraphic Tracings E P Carter Cleveland —p 719
47 *Diazo and Urochromogen Reactions as Prognostic Aids in Pulmonary Tuberculosis H J Corper and F F Callahan, Chicago —p 740
48 Hospital Chemical Laboratory N W Janney New York —p 747
49 Ninhydrin Color Reactions of Proteins and Their Split Products H W Emerson and J S Chambers, Ann Arbor, Mich —p 752
50 *Bulgarian Bacillus in Treatment of Vulvovaginitis M B Cohen, Cincinnati —p 757
51 Simple Colorimeter for Clinical Purposes V C Myers, New York —p 760
52 *Positive Test for Blood in Stomach M B Leviton, Chicago —p 761

46 **Simple Interpretation of Polygraphic Tracings**—The fundamental principles of the polygraphic tracings and the method of procedure in their analysis are described by Carter, their value as an aid to the proper understanding of many heart conditions is emphasized, and their importance in the correct diagnosis of the heart arrhythmias insisted on

47 **Diazo and Urochromogen Reactions as Aids in Tuberculosis**—According to Corper and Callahan patients dying of pulmonary tuberculosis give a positive diazo and urochromogen test at some time during the last six months of their illness Whenever both tests are negative during this period death was found to be due to some intervening condition such as pulmonary hemorrhage, tuberculous meningitis, etc Cases of chronic fibroid tuberculosis generally give both reactions negative except when same is explicable by some acute exacerbation, acute intercurrent infection or acute pleural effusion In active cases of pulmonary tuberculosis when both reactions are positive and remain so for most of the succeeding examinations it is of grave prognostic import When both reactions are negative in acute cases no stress can be laid on the findings There seems to be no regularity between the presence of either reaction, its disappearance to be displaced by the other or by both The presence of a urochromogen reaction in cases showing no clinical symptoms is of no prognostic value No diazo reactions were obtained in clinically inactive cases, whereas a number of urochromogen reactions were obtained in such cases The

presence of a diazo or of both reactions is a danger signal of grave import Careful clinical observations will from a prognostic standpoint give more information than the diazo and urochromogen tests in pulmonary tuberculosis The authors urge that wherever possible both tests should be performed but of the two the diazo should be given the preference

50 **Bulgarian Bacillus in Treatment of Vulvovaginitis**—Cohen claims that the bacillus bulgaricus does not thrive in the human vagina and is therefore of little use in the treatment of vulvovaginitis Three cases were treated by this method Each one had a very profuse discharge in which gonococcus like organisms could be easily demonstrated in smears taken by the swab method Smears from the vagina were examined twice weekly for the presence of Bulgarian bacilli and gonococcus like organisms Not once was the Bulgarian bacillus demonstrated in direct smear even when it was taken within twelve hours after an injection In two cases after ten and thirteen days of treatment respectively the discharge ceased and no gonococci could be found in the vaginal smears The treatment was discontinued for two days during which time Bulgarian bacilli were demonstrated with some difficulty in cultures from the vagina using the glacial acetic acid method described by Heinemann and Hefferman On the morning of the third day a discharge reappeared in which gonococcus like organisms could be shown Treatment using the culture which had been isolated from the vagina two days previously was resumed and was continued for three weeks During this time several negative slides were obtained but almost always after sufficient search a few typical gonococci could be found The third case developed measles on the eighth day of treatment and was transferred to the hospital for contagious diseases where the vaginitis was not treated On the thirteenth day after developing measles smears made from the vagina were positive for gonococcus like organisms and negative for Bulgarian bacilli The bacillus was demonstrated in small numbers by cultural methods

52 **Positive Test for Blood in Stomach**—The test for blood described by Leviton is a modification of Loeper and Binet s test of gastric contents (washings of the empty stomach) except that there is no preliminary lavage and the contents are first neutralized to avoid laking of the blood cells The technic is as follows The patient is directed to omit anything for breakfast, including liquids, to rinse the mouth and teeth frequently and expectorate any saliva that might form, so that little or none of the cellular elements of the buccal cavity might be swallowed (epithelium, pus cells, blood, etc.) A half glass of water containing a dram of sodium bicarbonate is administered with a glass of saline solution a few minutes later The abdomen is then thoroughly massaged and gently squeezed for a few minutes and the contents aspirated by means of a glass irrigating syringe attached to a narrow caliber colon tube (15 French), 4 mm in diameter It is usually necessary to assist the passage of the soft tube down the pharynx by pushing it down with one finger in the mouth to prevent kinking Tests showed that even in concentrated soda solution the red cells remained comparatively unharmed for a long time

Journal of Nervous and Mental Disease, Lancaster, Pa

July XLIX No 1

53 War and Nervous System L F Barker Baltimore—p 1
54 *Symptomatology and Diagnosis of Intracranial Tumors of Middle and Posterior Cranial Cavities Growing From Region of Gasserian Ganglion and Cerebellopontine Angle W B Cadwalader Philadelphia—p 11
55 What Do Psychiatrists Mean? A F Bronner, Chicago—p 30
56 Cooperation of Psychologist and Physician C Schmitt Chicago—p 34
57 *Hoffman s Sign or Digital Reflex T S Keyser Cleveland—p 51

54 **Symptomatology of Intracranial Tumors**—The following is a brief summary of the cases reported by Cadwalader 1 Cerebellopontine tumor Symptoms—Ataxia, weakness of the seventh nerve left third nerve and motor branch of the fifth nerve, cerebellar attitude, optic atrophy and extreme hunger Deafness was not recorded 2. Right-sided cerebellopontine tumor Symptoms—Ataxia, failing vision nausea and vomiting deafness on the right side headache seventh nerve weakness on the right side, early disturbances of the sensory branch of the fifth nerve on the right side numbness and choked disk 3 Cerebellopontine tumor Symptoms—Patellar reflex and Achilles tendon reflex were lost gait ataxic headache dizziness optic neuritis, nystagmus and paresthesia of the left side of the face 4 Cerebellopontine tumor Symptoms—Vertigo, failing vision ataxia left eighth nerve deafness left motor fifth nerve weakness left seventh nerve weakness, left external rectus and right internal rectus weakness, nystagmus with movement more marked to the right 5 Cerebellopontine tumor Symptoms—Ataxia headache muscular spasticity, mental confusion choked disk 6 Cerebellopontine tumor Symptoms Persistent and severe headache, choked disk greater on the left side paresis of the left external rectus slight paresis of the left side of face lost patellar and Achilles tendon reflexes Three attacks of unconsciousness the first with convulsions the character of which cannot be determined A remarkable feature is the absence of th ataxic gait 7 Cerebellopontine tumor Symptoms—Nausea, vertigo headache pain in the right side of the face tinnitus and deafness in the right ear, ataxia when standing and failing vision 8 Endothelioma removed from the posterior surface of the petrous portion of the temporal bone Symptoms—Twitching of the right facial muscles, followed by paralysis auditory hallucinations followed by deafness on the right side ataxia choked disk, headache, nausea and vomiting impairment of taste 9 Endothelioma removed from the posterior surface of the petrous portion of the temporal bone Symptoms—Nausea, vomiting impairment of vision choked disk right-sided deafness, anesthesia of the right side of face

57 **Hoffman's Sign or Digital Reflex**—"Digital reflex" is the term proposed by Keyser for "Hoffman's sign" The reflex typically consists of a flexion of the terminal phalanx of the thumb and of the second and third phalanges of on or more of the fingers when the operator suddenly nips th nail of the index middle, or ring finger The reflex is foun to be practically always present in organic lesions of th upper motor neurones except during the period of shock and also in some functional cases associated with livel deep reflexes The anatomy shows the afferent nerves stim ulated have the same segmental origin as the motor fiber innervating the muscles participating in the reflex Variou facts are recorded to show that the reflex belongs to th group of defense movements in contradistinction to th tendon reflexes

Medical Record, New York

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58 Nitrous Oxid Oxygen, Most Dangerous Anesthetic. J F Baldw Columbus Ohio—p 177
59 Pellagra J Aulde Philadelphia—p 181
60 Drug Habit F A McGuire and P M Lichtenstein, New York—p 185
61 Physics of Percussion and Auscultation of Chest F H Heise Trudeau—p 191
62 Poliomyelitis With Its Preparalytic Symptom L Fischer New York—p 194
63 Hypochondria C King Franklinville.—p 195
64 Consideration of Opsonic Technic as Possibility of Evidence of Leukocytic Inhibition A H May, Buffalo—p 196

Modern Hospital, St. Louis

July VII No 1

65 Nature Value and Necessity of Team Work in Hospital C H Mayo Rochester Minn—p 1
66 Robinson Memorial of Massachusetts Homeopathic Hospital W C Hill Boston—p 4
67 Medical Profession s Obligation to Patient. H. A Christian Boston—p 9
68 Safeguarding Hospital s Most Valuable Food—Milk C E North New York—p 13
69 Small Community Hospital—Its Finances J A Hornsby Chicago—p 18
70 Principles of Daylight and Artificial Lighting of Hospitals E R Knowles New York.—p 22
71 Should Hospital Buy Power or Install Plant? F Sutton New York—p 31
72 Artificially Colored Foods J P Street New Haven Conn
73 What Physician Should Contribute to Team Work. E E Crosse, 46

74 What Patient Should Contribute to Team Work W E Fairfield, Green Bay, Wis—p 48
75 Community's Obligation for Care of Its Indigent Sick and Injured F S Bunn, Youngstown, Ohio—p 49

New York State Journal of Medicine

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78 eview of Five Hundred Cases of Pelvic Infection with End Results J O Polak, Brooklyn—p 344
79 *Infection of Uterine Appendages, Its Sequelae, Its Nonsacrificial Treatment E E Montgomery, Philadelphia—p 348
80 *Resection of Pars Interstitialis in Diseases of Fallopian Tubes, with View of Preserving Uterus L K P Farrar, New York—p 351
81 Intestinal Obstruction in Children with Special Reference to Intussusception E W Peterson, New York—p 357
82 Intestinal Obstruction I M Snow, *Buffalo*—p 359
83 Surgical Treatment of Intestinal Toxemia J M Lynch and *J W Draper, New York*—p 362
84 Self Supporting Hospital J B Clark, New York—p 369
85 Medical Legislation W J Cruikshank, Brooklyn—p 371

76 Also published in the *Medical Record*, July 15, 1916
77 Abstracted in The Journal, June 24, p 2122
78, 79 and 80 Abstracted in The Journal, June 24, p 2124

Ohio State Medical Journal, Columbus

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86 Constructive vs Defensive Medical Organization W E Lower, Cleveland—p 479
87 *Cholecystostomy vs Cholecystectomy H S Noble, St Marys*—p 483
88 Uterine Fibromyomata and Cardiovascular Changes B R McClellan and R H Grube, Xenia—p 487
89 Conservation of Vision G C Schaeffer, Columbus—p 488
90 Supervision of Health of Schoolchildren in Cincinnati W H Peters, Cincinnati—p 491

Pennsylvania Medical Journal, Athens

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91 Pennsylvania's Compensation Law and Physician H A Mackey, Philadelphia—p 725
92 Pennsylvania Workmen's Compensation Act as it Affects Hospitals W H Walsh, Philadelphia—p 731
93 How Workmen's Compensation Act May Be Made Satisfactory to Profession J B McAlister, Harrisburg—p 736
94 Workmen's Compensation Law and Its Effect on Medical Profession C A E Codman, Philadelphia—p 739
95 Workmen's Compensation vs Medical Compensation F L Van Sickle, Olyphant—p 747
96 What Attitude Should Physician Take Toward Health Insurance? G Blumer, New Haven Conn—p 756
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100 Shock Neuroses and Psychoses in Present War E K Tullidge, Philadelphia—p 778
101 England's Efficient Surgery and Nursing Questionable Mercy E O'N Kane, Kane—p 782

Public Health Journal, Toronto

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102 Alcohol from Public Health Standpoint J W S McCullough, Toronto—p 335
103 [illegible] of Psychiatrist Toward Alcoholism as Cause of Insanity [illegible]ke, Toronto—p 337
104 [illegible] of Public Health A Corbett Smith—p 339
105 [illegible] J Martin—p 347

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112 Experience at Red Cross Auxiliary Naval Hospital of Hamburg, *Germany, During First Eight Months of Present War* H G Beyer, U S Navy—p 465
113 Diagnosis of Abdominal Pain W A Brams, U S Navy—p 476
114 Dosage in Roentgenotherapy A Soiland, U S Navy—p 484
115 Physical Examination of One Thousand, Eight Hundred and Eighty Applicants for Enlistment in Navy C H Lowell, U S Navy—p 487
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117 First Aid Dressings on Battleships G F Freeman, U S Navy—p 495
118 Lewisohn Citrate Method of Blood Transfusion, Report of Case of Traumatic Gluteal Aneurysm in Which This Method was Employed R B Williams, U S Navy—p 503
119 Report of Case of Ludwig's Angina W A Brams, U S Navy—p 506
120 Rupture of Liver, *Report of Case* C W Depping, U S Navy—p 510
121 Syphilis in a Chamorro L W Johnson, U S Navy—p 511
122 Report of Case of Intussusception Caused by Meckel's Diverticulum A M Fauntleroy U S Navy—p 511
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124 Hematoma of Abdominal Parietes J S Taylor, U S Navy—p 515
125 Bayonet Wound of Abdomen W B Hetfield, U S Navy—p 516

Washington Medical Annals

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126 *What Constitutes Dental Diagnosis C M Gearhart, Washington*—p 223
127 What Modern Methods Can Do To Eliminate Oral Sepsis A B Crane Washington—p 227
128 Relation of Mouth Infection to Goiter E H Reede, Washington—p 230
129 *Focal Infection N P Barnes, Washington—p 236*
130 Thrombosis of Cavernous Sinus C Henning Washington—p 241
131 History of Bodysnatching F Baker, Washington—p 247
132 Case of Traumatic Flat Foot Cured by Operation W P Carr, *Washington*—p 253
133 Indicanuria Study of One Hundred Consecutive Cases J R Verbrycke, Jr, Washington—p 254
134 *Cases Illustrating Faulty Treatment of Superficial Malignancy H H Hazen, Washington—p 255*
135 Infant Mortality with Reference to Postnatal Causes and Their Prevention E P Copeland, *Washington*—p 258
136 Institutional Mortality Among Infants H H Donnally, Washington—p 261
137 *Influence of Infant Welfare Center in Prevention and Reduction of Infant Mortality* J S Wall, Washington—p 265
138 *Diagnosis of Renal and Ureteral Calculi* H A Fowler, Washington—p 273

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British Medical Journal, London

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1 *Care of Pregnant Woman A Donald—p *33*
2 Tuberculins and Vaccines E H Coleman—p 36
3 Transfusion of Whole Blood L B Robertson—p 38
4 Intravenous Injections in Infants Through Superior Longitudinal Sinus at Anterior Fontanelle A Martin—p 40
5 Case of Acute General Hemorrhagic Peritonitis A J Nyulasy—p 40
6 *Case of Pneumococcic Conjunctivitis J Cropper*—p 41

1 **Care of Pregnant Woman**—The following are some of the points on which stress is laid by Donald The medical students throughout the country should receive a more thorough training in practical midwifery than is at present the case In Manchester the medical student is compelled to live in the maternity hospital for a period of four weeks while "taking out" his practical midwifery More facilities should be given for medical practitioners to have postgraduate instruction A week or two spent in a modern maternity hospital would bring many of them up to date in methods of diagnosis, of aseptic precautions, and of treatment generally The study of the pathologic problems connected with abortion and stillbirth should be stimulated by the provision of well equipped clinical laboratories in connection with maternity hospitals The large cities are now provided with maternity hospitals, and this system should be extended to the smaller towns, and even to the country districts Hospitals should be established in different areas,

and should be visited from time to time by an obstetric surgeon of experience, whose services should be available, if required for consultation with the local medical men or for the more serious emergencies In this way the medical men in the district who would be attached to the hospital would have their interest increased not only in the care of the pregnant woman, but also in her confinement and in the care of the newborn child The medical officers of health can do a great deal for the future generations if they will use their influence to try and persuade the health committees throughout the country to pursue this work through the institutions that are already in existence and to extend the same system to the less densely populated parts of the country

Edinburgh Medical Journal

July XVII No 1

7 Syphilitic Diseases of Ear J S Fraser—p 5
8 Case of Excessive Local Edema Following Cancer of Breast D M Greig—p *23*
9 Three Cases of Beri beri R A Fleming and H J C Gibson—p *27*

Indian Medical Gazette, Calcutta

June LI No 6

10 Ischiopagus Duplicity and Certain Teratoid Growths of Pelvic Region W R Williams—p *201*
11 Cataract Operations Old and New ' M Corry—p 207
12 New (Nath) Method of Extracting Cataractous Lenses E A R Newman—p 213
13 Dr Hossack s Paper on German Influence on Modern Bacteriology—Need for Elimination and Revision W D Sutherland—p 216
14 Hymenolepis Nana (Siebold) (Dwarf Tapeworm) as Parasite of Indian Soldiers F H Stewart—p 218
15 Case of Snake Bite P H Hennessy—p 219
16 Readily Made Splint for Compound Fractures of Femur and Bones of Leg W R J Scroggie—p 220

Journal of Tropical Medicine and Hygiene, London

July 1, XIX No 13

17 Transmission and Examination of Plague Specimens J A Mitchell and G W Robertson—p 153
18 Intermediary Hosts of Schistosoma in Natal F G Cawston—p 1-4

Lancet, London

July 8 II No 4845

19 Development of Structures Associated With Roof of Primitive Mouth J E Frazer—p 45
20 *Investigation Into Some of Effects of State of Nutrition of Mother During Pregnancy and Labor on Condition of Child at Birth and for First Few Days of Life G F D Smith—p 54
21 Report on Casualties from Jutland Coast Action Received at Royal Naval Hospital South Queensferry W M Ash and C P G Wakeley—p 56
22 Some Uses and Abuses of Massage E B Clayton—p 58
23 Experience of Galyl at Royal Naval Hospital, Chatham S F Dudley—p 59
24 Two Cases of Penetrating Wounds of Abdomen Involving Inferior Vena Cava D C Taylor—p 60
25 Use of Tuberculin in General Practice J L Bogle—p 61
26 Use of Ammonia in Chlorination of Water J Race—p 71

20 **Nutrition of Mother During Pregnancy**—The total number of cases investigated by Smith was 6,162, of which 3721 represented hospital experience in London and 2,441 similar experience in Dublin The percentage of dead births in the case of women of bad nutrition was 7 7 per cent out of a total of 65 cases In the class of average nutrition the dead births are 1 1 per cent out of a total of 183 cases In the class of good nutrition the percentage is 1 9 for 860 cases Of 59 labors, 11 9 per cent were premature in the class of bad nutrition, in the class of average nutrition 2 7 per cent out of 183 cases, in the class of good nutrition 1 3 per cent out of 848 cases Out of 3 693 babies born in the London hospitals 2 1 per cent died during the first ten days of life Out of 45 babies born of mothers with bad nutrition 6 66 per cent died, out of 184 babies of mothers whose state of nutrition was average 0 5 per cent died, and out of 328 babies of mothers with good nutrition 0.3 per cent died The death rate for 12 Dublin babies of mothers with bad nutrition was 8 3 per cent , in cases in which the mother's state of nutrition was average none of the 8 babies died, where it was good 0 8 per cent of 512 babies died

On the whole this study suggests that a state of bad nutrition of the mother at the time of labor due to insufficient food (1) greatly increases the percentage of dead births, (2) greatly increases the percentage of premature births, (3) slightly decreases the average weight of the full-time baby at birth, (4) definitely increases the postnatal infantile mortality, (5) has little, if any, effect during the first eight or ten days on the progress of babies who live during that time, and (6) possibly increase the death rate of babies during the first three or four days of life A state of good nutrition of the mother at the time of labor, on the other hand, (1) considerably increases the average weight of the full-time baby at birth, and (2) increases the percentage of mothers who are able to suckle during the first eight or ten days of the puerperium, quite apart from any effect from the use of an ample diet during this time

Bulletin de l'Academie de Médecine, Paris

July 4 LXXV No 27, pp 1 15

27 *Rapid Metastasis After Subsidence of Cancer Under Radiotherapy (Metastases rapides, a la suite de la disparition de tumeurs malignes traitees par le radium ou la radiotherapie) E Kirmisson—p 4
28 Effects on Nervous System of Explosions without Direct Contact (La commotion des centres nerveux par explosion—Considerations pathogeniques et cliniques) L Lepine—p 9
29 Blindfold Walking Test for Disturbance in Equilibration after Fracture of the Skull (Note sur un procede clinique nouveau permettant de mettre en evidence les perturbations du sens de l equilibre et de l'orientation chez les traumatises du crane) Cestan, P Descomps and R Sauvage—p 12

27 **Early Metastasis After Radiotherapy of Cancer**—Kirmisson reports the recent rapid and almost complete subsidence of an inoperable tumor in the neck of a soldier of 34 which seemed to be a ganglionary sarcoma It was hard and knobby and extended from the left ear to the clavicle All the viscera seemed sound and there was no trace of a tumor elsewhere and no leukocythemia As the tumor was inoperable it was given radium treatment and in four months had almost totally disappeared, but a large tumor speedily developed in the iliac fossa of the same side In a second case a large tumor developed in the right clavicle region after fracture of the clavicle in a girl of 12 The tumor presented the characteristics of a periosteal sarcoma the clavicle not being enlarged She was given radiotherapy and in a few months the tumor had completely disappeared but as this subsided there was metastasis in the spine the vertebrae bulging in the lumbar-sacral region and the child suffering intense pain and unable to move her legs Kirmisson emphasizes that in estimating the clinical value of radiotherapy the end-results have not been regarded enough When they are taken into account, the outcome of radiotherapy for sarcomas is found less favorable He thinks there is some analogy between the subsidence of the spleen under radiotherapy in leukemia without the progress of the disease being arrested, and the subsidence of sarcomas with early metastasis In the discussion that followed Bazy reported a case of lymphadenoma of the left parotid gland which subsided under radium with no signs of further trouble during the six years to date E Schwartz mentioned three cases of fulminating metastasis after radium treatment of sarcoma in the neck, thigh or uterus, but he recalls that the radium treatment in such cases is the ultimate resort when conditions are inoperable and even the few months gained is not to be despised Routier reported the complete cure for five years to date of a large lymphosarcoma in the left tonsil treated by introducing radium tubes through an incision back of the jaw In three cases of mammary carcinoma he applied radium or Roentgen rays after mammectomy and the cancers recurred exceptionally early and extensively, two of the women dying within the year of metastases in the lung or spine It actually seemed as if the prophylactic radiotherapy had hastened metastasis

Lyon Médical, Lyons

July CXXV No 7 pp 245 308

30 *Early Operative Reduction of Dislocation of the Temporomaxillary Joint (De la reduction sanglante precoce dans la luxation temporo maxillaire.) Guilleminet—p 245
31 Injection of White of Egg Into the Bladder to Simulate Pathologic Albuminuria A C Hollande and others—p 248

30 **Operative Reduction of Dislocated Jaw**—In Guillemin t's case the woman had dislocated the jaw on one side while yawning It was reduced without trouble but five years later she dislocated the temporomaxillary articulation on both sides under similar conditions It proved impossible to reduce the bilateral dislocation even under general anesthesia After failure at two sittings, a horizontal incision was made below the malar bone, parallel to the zygomatic process The fibers of the muscle were separated and the glenoid cavity felt to be empty The condyle of the jaw was then lifted on the concave surface of curved scissors, and levered into place, resting the scissors lightly on the upper jaw Hildebrandt in a similar case but of long standing restored the jaw to place by resecting the zygomatic process on each side

Paris Médical

July 1, VI, No 27, pp 1 36

32 Reliability of the Potain Sphygmomanometer A B Marfan—p 1
33 *Continuous Morning Headache with Abnormally High Blood Pressure (La cephalee matinale continue des hypertendus) L Renon—p 4
34 *Asystole Resulting from Relative Insufficiency of the Suprarenal Glands (L'asystolie surrenale) O Josue—p 7
35 *Puncture in Epigastrium for Pericarditis with Effusion (La ponction epigastrique de Marfan dans la péricardite rheumatismale avec epanchement) P Lereboullet—p 14
36 *Diagnosis of Functional Heart Murmurs (Diagnostic des souffles fonctionnels du cœur) P E Weil—p 18
37 War Wounds of Arteries (Lesions des arteres par projectiles de guerre) R Gregoire—p 22
38 Aneurysmal Hematoma from War Wounds E Marquis—p 26
39 *Differential Diagnosis of Cardiac Insufficiency (Les insuffisants cardiaques) H Gillet and G Boye—p 30
40 Technic for Obtaining Blood for Serodiagnosis (Comment recueillir le sang pour eviter les erreurs dans le sero diagnostic et specialement dans la reaction de Wassermann) M Leconte—p 33

33 **Continuous Morning Headache with Abnormally High Blood Pressure**—Renon has been studying for fifteen years a special type of headache which occurs in persons between 45 and 60 with arteriorenal sclerosis The sclerosis may be the result of interstitial nephritis from scarlet fever in childhood, or of imperfectly treated syphilis, tobacco poisoning or excessive meat eating A sedentary life, cares and excessive mental work are cooperating factors The minimal blood pressure is quite high in these cases The headache may be diffuse or partial, but usually spares the occipital region It wakes the patients at 5, 6, or 7 o'clock, grows worse toward 9 and 10 and gradually subsides by noon or 1 o'clock On account of the intensity of the pain, which renders all physical or mental work impossible, the patient seeks to arrest it with a headache powder or neuralgia medicine This may soothe it for an hour or two but it then returns, and more drugs are taken until there is superposed drug intoxication and a vicious circle The heart is large and there is hypertrophy of the left ventricle, usually with polyuria, and slight albuminuria The headache may be mild on rising and not become severe until after some physical or mental exertion, climbing stairs, writing a letter, or doing other brain work This is the sign of hypertension which Josue calls "painful thinking" the pain being brought on by mental effort The course of the headache is progressive, like that of the hypertension Death occurs suddenly after some special effort or fatigue or indiscretion in diet The prognosis is graver the higher the minimal pressure He does not regard the headache as of toxic origin as the patients urinate copiously at night, mechanical factors from the reclining are more liable to be responsible

Treatment must include weaning the patient from headache remedies and tobacco All physical and mental effort must be stopped and absolute repose enforced, keeping the patient on an exclusive milk diet for a week Two liters milk in the twenty-four hours should be the limit adding to each liter of milk 2 5 gm of sodium citrate During the following two weeks nothing but milk should be allowed on two days each week, with a fruit and vegetable diet the other days By the end of the third week a mixed diet can be resumed, allowing meat only once a day, at midday Salt should be used sparingly, he gives each patient an envelop containing 3 gm salt for each day which he can use to suit himself After three weeks of this dieting and repose, if the headache persists and if the minimal pressure keeps high, he prescribes thiosinamin, keeping it up a long time It may help and is harmless He adds that this cannot be said of iodid treatment, which, except in the presence of syphilis, has no action on the arteriosclerosis and blood pressure while it is liable to aggravate the headache If syphilis is suspected, specific treatment should be given, but very cautiously

34 **Suprarenal Heart Failure**—Josue relates that at necropsy in four cases of sudden death from cardiac insufficiency he found the myocardium much hypertrophied and apparently strong, not at all the aspect of a muscle that had given out from weakness, and nothing in the vicinity could be found to explain the heart failure On the other hand, the suprarenals were always extremely small or diseased in these cases, and he presents arguments to show that the heart was suffering from lack of the physiologic stimulus for its contractions supplied normally by the suprarenals This suprarenal asystoly, as he calls the resulting syndrome, is characterized by a large heart with low arterial pressure Drawing the finger or a stick along the skin leaves a white mark instead of the usual red mark There is often complete arrhythmia and auricular fibrillation, with more or less dyspnea

Digitalis has little effect in these cases, but suprarenal extract had a manifest beneficial action Early and systematic suprarenal extract treatment may ward off or retard the otherwise inevitable fatal termination He gives the details of three such cases showing the marked improvement under suprarenal treatment. The white line disappeared in two or three days and the blood pressure rose It seems probable that the suprarenals become exhausted by their efforts to supply the physiologic stimulus to the enlarged heart, but tuberculosis is probably also a frequent factor in the suprarenal insufficiency Three of his seven patients with this suprarenal asystoly had tuberculous lesions In treatment it is necessary to distinguish which of the symptoms are to be ascribed to suprarenal incompetency and which to cardiac incompetency and give suprarenal treatment or digitalis accordingly He found that extract of the total gland seemed to act quicker and better than epinephrin alone He gave it by the mouth, 0 4 gm a day, in two doses, or by subcutaneous injection of 1 c c a day This treatment not only supplies the lacking physiologic stimulus for the heart's functioning but it also aids the suprarenal glands to recuperate A table is given showing the comparative weight of the heart and total suprarenals in his four cases that came to necropsy The ratio was 104 1, 98 1, and 55 1 while in twenty-two other cadavers it ranged only from 15 1 to 38 6 1

35 **Puncture of Pericardium Through the Epigastrium**—This entire number of the *Paris Médical* is devoted to the heart and vessels Lereboullet describes cases to demonstrate the advantage of puncturing a pericarditic effusion through the epigastrium, especially when it is a complication of acute febrile rheumatism Epigastric puncture is not only exploratory but curative, while it is practically harmless and is particularly useful in tuberculous pericarditis and the pericarditis with Bright's disease Even when the effusion is small, this technic gives confidence to the physician and has repeatedly proved a life-saving measure in Lereboullet's hands In one instructive case a young man had a first attack of severe acute articular rheumatism, with signs of pericarditis with effusion, and the condition was evidently progressing to a speedily fatal termination Puncture a little to the left of the median line just below the xiphoid appendix, permitted aspiration of 180 gm of a serofibrinous fluid with traces of blood The puncture was followed by severe pain in the epigastrium hiccup and tendency to syncope, but these symptoms subsided after an injection of morphin in camphorated oil The young man was left with a mitral lesion but he had quite recovered from the pericarditis With gonococcus pericarditis even a small effu

sion is liable to entail considerable dyspnea and puncture through the epigastrium releasing even as little as 50 gm of fluid, may completely transform the clinical picture It seems as if the intracardiac nerve ganglia must suffer from the presence of any effusion regardless of its size and the relief from this after puncture explains the surprising benefit

For puncture through the epigastrium, the patient half sitting up in bed a lumbar puncture needle is introduced just below the xiphoid appendix, on the median line The handle is then lowered so that the needle slants upward close to the inner side of the sternum, as if trying to shave it When it has entered for 4 cm in a child or 5 or 6 cm in an adult, the tip should be in the pericardium, and at almost its lowest point By keeping to the median line the peritoneum is not entered and the muscle fibers of the diaphragm are avoided Except with much distention of the abdomen from meteorism, or malformation of the sternum, as in the funnel-shaped thorax the epigastric puncture can be applied with confidence whenever a pericarditic effusion is suspected as responsible for the serious symptoms With purulent pericarditis, especially pneumococcus pericarditis, the puncture should be followed at once by pericardotomy In one case the attempt was made to get along without this but it finally became necessary after twenty punctures had failed to cure When the effusion is mainly or entirely back of the heart, it is evacuated best by puncture from the back, through the posterior left seventh interspace

36 **Differentiation of Functional Heart Murmurs** —Among the differentiating signs mentioned by Weil are that the points where the murmur sounds loudest are not exactly the same as with organic murmurs The murmur is not exactly at the apex and not exactly over the valves, it may be most *pronounced midway of the sternum.* The murmur is not propagated like an organic murmur but dies out where it is born, and the sound is soft, veiled as it were Functional murmurs are systolic but they do not occupy the entire systole, they usually commence after the first heart sound and finish before the second The variability from day to day and during repose and exercise is the most marked characteristic of functional murmurs During the examination they may change their seat their rhythm and tone, and they do not occur regularly with each systole As a rule they are most distinct when reclining and they are modified by deep breathing and exaggerated by emotions and muscular work After running a few yards, a second murmur may appear at base or apex when there was only one before. Pressure on the eyeballs arrests functional murmurs as a rule The heart beat is retarded at the same time If the patient then runs a few yards the murmur reappears but can be arrested anew by pressure on the eyeballs, while the accelerated heart beat drops from 120 or 140 to 80, 60, 40 or even 25 Organic murmurs are increased by pressure on the eyeballs as a rule In some cases as this abolished the noisy functional murmurs it disclosed a small mitral murmur previously unsuspected To determine the functional capacity of the heart with or without an organic lesion, the behavior of the heart beat and blood pressure after a slight standard exercise is the criterion With a capable heart the pulse increases from about 70 reclining to 80 standing and to 90 after a slight exercise but the blood pressure shows little change standing and rises only about 10 mm minimal and 40 mm maximal and soon drops back to normal with the pulse in repose. With a weak heart the pulse runs up notably on change of position while the maximal blood pressure does not rise or may fall but the minimal pressure rises considerably, and all these changes persist for some time in repose Overexcitable hearts respond like the normal heart only in a much exaggerated form

39 **Cardiac Insufficiency** —Gillet and Boye call attention to a small group of cases in which dyspnea on effort palpitation fast heart beat and exaggerated reaction to changes of position suggest a cardiac neurosis but this is disproved by the tendency to cyanosis in the hands and feet and by the lack of any neuropathic predisposition At night reclining everything seems normal The blood pressure is always low Such patients require prolonged repose, reclining with tonic medication for the heart and general tonics These measures applied in time may restore the heart to normal but if left untreated this transient insufficiency will become chronic and run a progressive course

Revue Médicale de la Suisse Romande, Geneva

June, XXXVI No 6 pp 345 384

41 *Clinical Relations between Erythema Nodosum and Tuberculosis Jaquerod —p 345
42 *Technic for and Experience with Spinal Anesthesia for Operations (Quelques remarques pratiques sur la rachianesthesie appliquee aux operations chirurgicales) T Cavazzani —p 354
43 The Public Health Service in the French Colony of Morocco (Notes sur le service de sante pour les indigenes au Maroc) F Blanchod —p 359
44 Treatment of War Wounds of the Thigh (Quelques experiences de chirurgie de guerre sur le traitement des fractures de cuisse) H Curchod —p 370

41 **Tuberculosis in Connection with Erythema Nodosum** — Jaquerod remarks that the complaisance with which physicians used to regard erythema nodosum has been somewhat shattered in the last ten years Evidence is accumulating that associated or subsequent tuberculous lesions are not the casual coincidence formerly supposed, but bear a causal relation to the skin disease Uffelmann suggested a clinical relation between them years ago, and Hildebrandt induced tuberculosis in guinea-pigs by inoculating with scraps from the erythematous nodes Chauffard found a typical erythematous node develop at the *point of injection of tuberculin* in a tuberculous girl Landouzy discovered a tubercle bacillus in cutting an erythematous node, and guinea-pigs inoculated with scraps from this node developed severe local and general tuberculosis A number of inaugural theses in France have supplied further testimony The intradermal tuberculin reaction was positive in 100 per cent. of the patients tested and an inherited tuberculous taint was often manifest. Sezary reported in 1912 a case in which erythema nodosum was followed four months later by tuberculous meningitis

Jaquerod reports two recent cases of erythema nodosum in a girl of 10 and boy of 5, extremely severe but with rapid *and apparently complete recovery Both children had* latent glandular tuberculosis and the eruption occurred several days after an acute febrile gastric upset in one case and typical grippe in the other These intercurrent affections may have roused the torpid tubercle bacilli and as they made their way into the blood they induced a transient tuberculous toxemia which in turn induced the erythema nodosum The prognosis therefore is that of the underlying tuberculous infection and there is nothing to show that those who develop erythema nodosum are more liable *than others to have serious tuberculosis later* He has had numbers of patients with erythema nodosum who are now in robust health after intervals ranging up to fifteen years

42 **Spinal Anesthesia.**—Cavazzani *says that one great* advantage of spinal anesthesia is that the patient can be consulted and his consent obtained if a change in the plan of operation is deemed advisable when the region is opened up The surgeon s tranquil confidence in the anesthesia is also in marked contrast to the agitation and precipitation liable in serious operations under inhalation anesthesia The amount injected into the spinal cavity must be adequate, he injects as a rule 0 10 gm of novocain for operations on the regions innervated by the sacral nerves but for the legs abdomen or kidneys he uses from 0 11 to 0 14 gm according to the patient s corpulence the pressure in the cerebrospinal fluid and his state of mind The novocain is in a 10 per cent solution and he draws the spinal fluid into the syringe to bring it to 2 per cent The seated patient is then laid horizontal or the pelvis is raised a trifle If it has to be raised much he waits for this until the moment *for it arrives When the maximal dose is approximated* there are liable to be vomiting headache and paralysis of movement but they are transient. In the hundreds of cases in which he has applied this technic he has never had any other pathologic phenomena at the time or later that could be referred to the lumbar injection, but he would restrict its use to operations on or below the kidneys

Correspondenz-Blatt fur Schweizer Aerzte, Basel

July 1, XLVI, No 27 pp 833 864

45 Twin Pregnancy at Term, Eclampsia, with Fracture of Skull from Fall at First Convulsion Recovery after Cesarean Section (Eklampsie und Unfall) R Schweizer —p 833

46 *Arrhythmia (Klinisches über die unregelmässige Herztatigkeit) H Ryser —p 839 Concluded

July 8, No 28, pp 865 896

7 Experiences in a German Military Hospital Near the Front (Aus einem Lazarett) W Knoll —p 865

Tuberculosis and Life Insurance for Soldiers (Tuberkulose und Militärversicherung) Hauser —p 887

46 **Arrhythmia**—Ryser's article is continued through three numbers, as he discusses the chief forms of arrhythmia The finer differentiation of the various types now possible has already given results in diagnosis, prognosis and treatment, as the experiences here related abundantly testify He emphasizes anew that any and every form of arrhythmia can occur as a transient or persisting functional disturbance in an otherwise normal heart muscle, and reiterates that even the severest type of arrhythmia gives no information as to the condition of the myocardium Not the arrhythmia in itself determines the prognosis but the conditions in which the arrhythmia occurs Disturbance in conduction may be of a harmless nature, as, for instance, after influenza With diphtheria, however, it is of evil import as we know that diphtheria may seriously menace the heart In discussing tachycardia he comments on the fact that the attacks may be brought on by factors acting on the position of the diaphragm or modifying the circulation, possibly in an apparently insignificant manner In any event, emptying the bowels may give relief and ward off recurrence Even vomiting or passage of flatus may abort an attack The prognosis depends on the strength of the heart and its ability to stand the strain of the tachycardia In young persons with sound or but slightly impaired hearts, whose attacks are not very frequent and do not last more than a few hours at most, the tachycardia does not seem to be dangerous and almost always has a favorable outcome There is no specific treatment, but an ice bag to the heart always gave some relief in his cases, and retching or an enema may aid Ryser once promptly aborted an attack by the vagus pressure method Digitalis also may aid, by its action on the vagus it brings the heart back into its normal pace An intravenous injection of strophanthin also has accomplished this in some cases on record

The respiration seems to have the most marked influence on sinus arrhythmia This "respiration arrhythmia" must by no means be considered as a sign of incompetency on the part of the heart It occurs almost exclusively in the young and healthy who are not using their minds much at the time Study of this type of arrhythmia confirms anew that the respiration reflex on the heart, like other reflexes, is subordinate to the highest centers, which have an inhibiting influence on them If any attempt at treatment is made, it should be merely to call the mind and body into play, thus striving to accelerate the pulse and make it more regular He says of pulsus aternans that it is usually a phenomenon of the pulse rather than of the heart It is the expression of an alternating variation in the amount of blood expelled from the heart at each beat, and this depends on conditions in the circulation independent of the heart's energy, as a rule Only when the systoles are of unequal length is the heart itself responsible for the alternating pulse, and the mechanism of the heart's action is not disturbed even then Pulsus alternans owes its evil reputation to the fact that it is usually associated with arteriosclerosis or kidney disease As a mere phenomenon of the pulse it requires no treatment

Gazzetta degli Ospedali e delle Cliniche, Milan

June 25, XXXVII No 51, pp 801 816

49 *Small Epidemic of Cerebrospinal Meningitis M Vivaldi —p 805

July 2, No 53, pp 817 832

50 Pathology and Treatment of Neuroses of the Blood Vessels (Alcune considerazioni sulla patologia e terapia delle angio nevrosi) P Ercolani —p 820

July 7, No 54, pp 833 848

51 Operative Treatment of Skull Wounds, Twenty Nine Cases (Contributo alla cura chirurgica delle ferite del cranio) O Ortali —p 835

49 **Epidemic Meningitis**—The mortality was 35 per cent among the thirty-two cases Two of the young men had complicating thrombosis of the right femoral vein and deafness One child was left with paresis of the right arm and one with embolic iridochoroiditis One of the patients who seemed to have almost entirely recovered died in a few hours after return of symptoms and general paralysis Necropsy revealed anemia and edema of the brain substance while the ventricles were distended with a limpid and sterile fluid This case taught the necessity for immediate lumbar puncture at the slightest sign of return of symptoms even late in convalescence In another case necropsy showed that adhesions had walled in the fluid in the ventricles The specific *meningococcus* was found in all but five cases and Gram-staining diplococci in these

Policlinico, Rome

July 2 XXIII No 27, pp 837 864

52 Culture Mediums for Cultivation of Cholera Germs (Sui terreni Dieudonne ed Aronson nella diagnosi batteriologica del colera) S Minelli —p 837

53 Ten Months in the Medical Corps at the Italian Front (Dieci mesi di servizio sanitario in guerra) T R Doria —p 840 Concluded

54 Sugar in the Urine from the Standpoint of Life Insurance (La glicosuria e l'assicurazione vita) I Romanelli —p 844

June, Surgical Section No 6, pp 161 192

55 Cystic Tumor in Hernial Sac (Sui tumori intrasacculari dei visceri erniati) G Campora —p 161

56 *Muscle Flap to Repair Large Gap in Wall of Pharynx and Larynx P L Della Torre —p 171

57 Experimental and Clinical Study of Ligation of Coronary Vessels (Legatura separata e simultanea delle arterie e delle vene coronarie del cuore) L Dominici —p 181 Continued

56 **Repair of Gap in the Throat Wall**—A farmer fell on a sharp iron spike which tore a square gap in the wall of the pharynx and larynx, about one fourth of its circumference Loss of blood was combatted with hemostatic clamps and tamponing, and the breach was repaired with a flap of muscle and fascia tissue, 10 by 6 cm, taken from the abdominal wall The illustrations show how the flap was applied to rebuild the wall and also to reduce and hold in place the fractured hyoid bone with the upper end of the flap It was fitted over the bone with U sutures taken along the entire width of the flap to complete the tunnel in which the bone lies The operation was a success, the rebuilt air passages functioning perfectly The voice is natural except for a little hoarseness The flap was made large enough to extend for some distance beyond the gap, to ensure its nourishment The jagged and soiled wound—the hyoid bone and the thyroid cartilage were quite denuded—rendered the outcome dubious and the complete success is all the more remarkable

Siglo Medico, Madrid

June 24, LXIII, No 3 263, pp 401 416

58 Heart Block in Man of 62 (Caso de automatismo ventricular con fibrilacion ventricular) L Calandre —p 402

59 *Atypical Forms of Tuberculous Meningitis B Gil y Ortega —p 406

July 1, No 3264, pp 417 432

60 Arsenic and Tuberculin in Treatment of Pulmonary Tuberculosis J A M L de Guevara

61 Wet Packs to Control Fever (La sabana humeda) P Noguera

59 **Tuberculous Meningitis**—In Ortega's first case, in a girl of 7, tuberculous meningitis was accompanied by hyperesthesia of the skin so intense she could not bear the slightest touch The child died the twenty-fifth day, the hyperesthesia persisting to the end The second patient was a young woman who died the ninth day after the onset of severe headache, with slight fever, and extreme prostration passing into complete and persisting coma the third day In the third of this trio of atypical cases of tuberculous meningitis, the patient was a woman of 24 who had been presenting symptoms of acute pulmonary tuberculosis during a pregnancy The seventh day after delivery at term of a nonviable child, the woman developed maniacal excitement,

with the senses abnormally acute It was impossible to make a physical examination at first but the patient s strength rapidly declined and the signs and symptoms of involvement of the meninges in the tuberculous process were soon apparent with a fatal termination three weeks after the childbirth

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 1 II No 1 pp 1 96

62 Pituitary Treatment in Obstetrics (Pituitrine inspuitingen bij de baring) M M De Monchy —p 5
63 *Progressive Myopia and Its Treatment W Koster —p 17
64 Workings of the Workmen s Compensation Law (Eenige opmerkingen over de practijk der ongevallenwet 1901 in verband met art 41 en den strafrechter) D De Snoo —p 26
65 *Operative Treatment of Rebellious Trigeminal Neuralgia (Trigeminus neuralgie en de behandeling der hardnekkige gevallen) L J J Muskens —p 32 Concluded
66 Cure of Hysteric Deafness by Hypnosis Two Cases (Genezing van twee gevallen van hysterische doofheid door hypnose) I Zeehandelaar —p 41

63 **Progressive Myopia** —Koster agrees with Donders that there is usually disease where there is myopia This is beyond question with severe progressive myopia and the clinical course and effects of treatment reveal the ocular affection as a primary infectious chronic chorioretinitis Any degeneration observed is of secondary nature In treatment the patient and parents must be warned to refrain from taxing the eyes beyond what is strictly necessary and all exercises games etc., must be avoided that are liable to induce congestion in the head General treatment is important, for this he alternates mercury and potassium iodid for two weeks each keeping this up unmodified if the myopia continues to progress by the end of six months but the vision has shown no impairment. If there is any decline in vision while the myopia progresses he keeps the patient in bed for six weeks with daily inunction of 3 gm of mercury, supplemented by radium treatment of each eye for five hours at weekly intervals If there is much hyperemia or signs of a tendency to chronic cyclitis he gives a course of atropin The eyes are given complete rest therewith If there are any contraindications to mercury he gives a course of salicylates instead, with iron and a strengthening diet

After such a course of treatment the eyes can be used systematically a little and the further development of the case watched He deplores that he can so seldom induce patients to take this regular course of treatment The time required the expense and the dread of mercury combine to make patient and parents shrink from it Sometimes all he can get consent for is a brief course of radium treatment and protracted medication with small doses of mercury, the salicylates, iodids or iron, but he insists that these must be kept up for years

Progressive myopia with detachment of the retina or other serious complication he treats in the same way aiming to retain vision as good as possible in the comparatively sound eye He declares further that even a slight degree of accommodation is harmful in time for eyes with progressive myopia The hyperemia induced by accommodation aggravates the infectious process

He has had many years of experience with treatment based on the above premises Some patients with myopia of 20 and more D have had it arrested at this point so that the myopia was retarded so that the progress grew very slow and vision was less impaired than in the untreated He adds that the results of operative treatment have proved so unsatisfactory in the long run that operative measures now have been generally abandoned Koster s study and treatment of simple myopia was summarized in these columns August 5 abstract 89

65 **Operation for Rebellious Trigeminal Neuralgia** —Muskens discussion of the best method of relief for inveterate neuralgia was given with a description of his technic in abstract 87 in The Journal August 5 Instead of gasserectomy he crushes the nerves just below He here gives the minute details, with illustrations of the five cases in which he has applied his method with full details as to the sensory phenomena after the operation The patients were three women between 58 and 69, and two men of 53 and 34 The last mentioned was operated on in 1904, after twenty-five years of trigeminal neuralgia, and he has had no further trouble during the twelve years since, occupying the responsible position of train-despatcher

Hygiea, Stockholm

LXXVIII No 11 pp 721 800

67 *Severe Diabetes Mellitus with Atrophy of Thyroid and Pituitary Body and Lipemia in Boy of 16 (Ett fall av svår diabetes mellitus med multipla endokrina rubbningar) S Lindblom —p 721
68 Primary Sarcoma of the Trachea S Berggren —p 765
69 Industrial Arsenic Poisoning (Om arsenikundersokningar) P Klason —p 776
70 *Otogenous Abscess in the Brain Three Cases (Tre fall av otogen hjarnabscess) N Witt —p 783
71 Ear Speculum (Ett nytt öronspeculum) G Richnau —p 789

67 **Diabetes with Multiple Endocrine Derangement** —Lindblom s retrospective diagnosis after necropsy is that the internal secretion of the pancreas was first at fault, possibly as the result of severe osteomyelitis over three years before The patient was a boy of 16 and unusually severe diabetes developed, fatal the sixteenth month His urine contained from 600 to 800 gm sugar a day Owing to the reduced functioning of the pancreas, the thyroid and hypophysis were spurred to excessive functioning which in time entailed atrophy of both, with resulting functional insufficiency of both The symptoms from this were benefited to some extent by organ therapy Toward the last, lipemia of 17 55 per cent and after death 12 8 per cent was found in the blood As the lipemia developed, pustules formed on the limbs and around the mouth, the pustules containing mostly fat In connection with his case Lindblom discusses analogous observations on record in which diabetes and myxedema were associated, and the mechanism for this and for the lipemia in his case The suprarenals in his case seemed to be normal but there were signs of excessive functioning His conclusion from the data presented is that although the hormones of the pancreas and thyroid are antagonistic yet the organs themselves stimulate each other, so that excessive functioning of one spurs up the other, and hypofunction of one entails hypofunctioning of the other The same relations prevail between the pancreas and the pituitary body This assumption would explain the frequent coincidence of diabetes and obesity, diabetes mellitus and insipidus and the cases of myxedema and diabetes cured by thyroid treatment. The lipemia in his case is readily explained by the augmented mobilization of fat and the reduced oxidation of fat from the disturbances in the endocrine system

68 **Sarcoma of the Trachea** —Berggren adds another to the twenty cases on record of primary sarcoma of the trachea As a rule they seem relatively non-malignant, his is the only case in which metastasis is known, and there has been no sign of recurrence during the four months since the operation to date The patient is a man of 56 who had had a dry cough for twenty years but otherwise had been healthy During the last six months his voice had become hoarse and he had been short of breath but there were no disturbances in swallowing and no weakness The pedunculated tumor was in the upper part of the trachea on the anterior wall, about as large as a hazelnut and roentgenoscopy showed an enlarged pretracheal gland and a bunch on a rib, both of which were evidently metastases The tumor was removed from without and with it the enlarged gland, the rib was also resected, and prompt recovery followed with no signs of recurrence to date In two of the twenty cases in the literature the patients were children of 11 and 13 In Betz s case the tumor was 5 cm long and hung down like a polyp into a bronchus Death occurred from sudden suffocation, the tumor having evidently been drawn up into the trachea which it plugged completely In one case there were several tumors, with broad base and smooth surface

70 **Otogenous Abscess in the Brain** —One of Witt's three patients was a young man who had had bilateral purulent

titis since childhood but was otherwise robust until, four s before the operation, he had developed headache and ziness and vomited frequently There could be no question as to the existence of an otogenous abscess, but on which side? There were no focal functional symptoms The radical operation was done on the right side, but no signs of an abscess were found As the symptoms persisted, a week later the dura was incised and pus found and drained, fully 10 c c of pus being thus evacuated A complete cure of the otitis on that side followed The second patient, a girl of 14 was also cured by evacuation of a large abscess in the temporal lobe, with one cavity 5 cm deep She had had otitis two years before which had apparently healed, and there had been no symptoms until the last month she had had headache and a bloody purulent discharge from the ear Both patients were given hexamethylenamin and recovery was prompt and complete The third patient had had acute otitis for only a week when there was an *epileptiform* seizure and symptoms of meningitis An abscess was found in the temporal lobe but the meningitis continued and soon proved fatal

Ugeskrift for Læger, Copenhagen

June 8, LXXVIII No 23 pp 927 984

72 *Operative Treatment of Brain Tumors, Twenty Cases (Radikal operation ved Hjernesvulster) V Christiansen —p 927
73 *Spasm of the Cardia (Kardiospasme —Dilatatio øsofagi) E Madsen —p 947

June 15, No 24 pp 985 1030

74 *Chronic Gastric Ulcer Presenting the Characteristic Niche in Roentgen Picture. (8 Tilfælde af Ulcus ventriculi chron frembydende Haudecks Nischesymptom) J E Mauritzen —p 985
75 Impacting of Twins Simultaneously in Pelvic Outlet, Two Cases (2 Tilfælde af Kollision mellem Tvillinger) A Tofte —p 995

June 22 No 25 pp 1031 1078

76 *Abderhalden's Dialysis Reaction in the Tuberculous (Abderhalden's Dialysereaktion hos Ftisikere.) V Petersen —p 1031
77 Positive Wassermann Reaction with Venereal Ulcer Calls for Treatment as for Syphilis (Om positiv Wassermann's Reaktion ved Ulcus venerum, samt om Betydningen af en mere fintmerkende, selvom mindre specifik Wassermann's Reaktion) C With —p 1054

72 **Brain Tumors** —Christiansen is chief of the neurologic clinic at Copenhagen, and he here reviews twenty recent cases in which he diagnosed a tumor in the brain and helped to locate it for surgical removal Four of the eight patients with a tumor in the motor area were materially benefited by the operation and a number of the ten with a tumor in the cerebellopontile angle Improvement in the treatment of brain tumors all depends, he declares, on the general practitioner recognizing in their incipiency the insignificant symptoms which indicate the beginnings of a brain tumor Few realize that brain tumors are so common, and yet rare indeed are the cases in which they can be removed in time to avert irreparable injury In several of his cases the symptoms had seemed to indicate an inoperable tumor, but when the tumor was exposed it was found that it could be easily shelled out, after which the general and local symptoms promptly subsided This encourages an attempt at operative measures in the most apparently desperate cases Cortical convulsions in one case, affecting one side only, including the shoulder, returning during three years with long intervals of apparently perfect health, were diagnosed at first as functional, but later the paresis which followed the convulsions became permanent, and the thigh muscles atrophied, with sensory disturbances *The man had* occasional attacks of headache, still more rarely vertigo, and once transient double vision A glioma was found in the left motor area but it blended with the surface of the brain and seemed to be malignant However, except for ataxia of the right side the symptoms have subsided and the man, fifteen months after removal of the tumor still feels entirely well Heachache, occasional vertigo and transient double vision were the first symptoms in other cases clinically cured by the operation In another there had been a few convulsions at puberty In this and in a second case in a man about 38, slight paresis and atrophy of one arm developed with spasms of the face muscles on that side In these cases the trouble was a subcortical cyst, and both men recovered after its removal, but in one case the cyst returned and seems now to be returning for the third time

Cerebellopontile tumors are usually easily shelled out and they induce warning symptoms early in the domain of the cranial nerves, especially deafness and abnormal vestibular and corneal reactions These, with optic neuritis, suggest a tumor In one case the deafness had been noticed for several years In others there was cold paresthesia on one side, including the face, or dizziness or vestibular disturbances A typical vestibular attack, with aura, subjective noises and dizziness, is characteristic of cerebellopontile mischief Lumbar puncture revealing abnormal proportions of albumin but no pleocytosis and no Wassermann reaction, is also typical Roentgen examination seldom gives positive findings but occasionally is very instructive In one of his fatal cases, fibromas were found also in the esophagus and stomach In another case a woman of 60 for several years had had attacks of dizziness, and finally headache and somnolency with fleeting double vision The operation revealed fibrous changes in the dura, and at necropsy a month later a fibroma was found in the cerebellopontile angle, and others elsewhere

Of the ten angle tumors, two of the patients are still living fifteen and seventeen months later although it is dubious whether all the growth was removed at the translabyrinth operation One of these patients had had symptoms for ten, one for two years The growth was no larger than a hazelnut in either case One patient died from the effects of lumbar puncture before the operation had begun Choked disk rapidly retrogresses after removal of an angle tumor and sometimes after merely a palliative intervention In one patient the trouble proved to be diffuse sarcomatosis

73 **Cardiospasm** —Madsen expatiates on the importance of Roentgen examination in puzzling conditions in the stomach and intestines, relating a case in which erroneous conclusions had been previously drawn as the contraction of the cardia prevented ingress of the exploring catheter into the stomach and the tip had doubled back when it was supposed to have passed straight into the stomach The patient was a clerk of 20 and he had had stomach trouble for eight years The esophagus was much dilated, the mucosa hanging like a loose curtain from top to bottom, but nothing suggesting ulceration could be seen Prompt improvement followed daily introduction into the cardia of an inflatable bag made with an unelastic silk netting between two layers of rubber While the bag was in place the esophagus was rinsed out Marked improvement was evident in a week and recovery was soon complete

74 **Chronic Gastric Ulcer with Recess Shadow** —Haudeck called attention in 1910 to the peculiar shadow cast by a gastric ulcer that had a crater extending deep into the wall of the stomach The bismuth enters this crater, pushing the air before it, thus casting a shadow projecting like a finger with an air bubble above This projecting "niche" shadow remains for a time after the stomach has been otherwise emptied Mauritzen here relates the details of eight cases of chronic gastric ulcer of this deep boring type In all, this niche sign was pronounced and all the patients recovered after resection of the ulcer into sound tissue The stomach was of hour-glass shape in seven He regards this niche sign as pathognomonic of this type of ulcer, and declares that it calls for immediate operation

76 **Abderhalden's Dialysis Reaction in the Tuberculous** —Petersen comments on the contradictory nature of the literature on this subject to date and devotes ten pages to the tabulated details of his own experience with 108 tuberculous patients and 12 healthy persons Using tubercle bacilli as the antigen, a positive response was obtained in 42 per cent. of the healthy, in 80 per cent of his patients in the first stage of tuberculosis, in 57 per cent of those in the second stage, and in 46 per cent of those in the third stage The dialysis test made with tubercle bacilli or tuberculous gland tissue seems to be a specific reaction for tuberculosis But it affords no information whether the tuberculosis is active or inactive, and is no aid in the prognosis of the concrete case

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THE TEACHING OF DERMATOLOGY *

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SAN FRANCISCO

The tendency in a number of medical schools is to place dermatology in the elective group of the curriculum, in others, the tendency is to decrease the number of required hours, thus conforming too closely to the minimum amount of time allotted by the schedule of the Association of American Medical Colleges, namely, forty-five hours If there is any special branch of medicine which should be required, it is dermatology

If the student intends to become a general practitioner, to confine his interest to special branches or to enter public health work, a course in dermatology and syphilography extending over at least sixty hours is absolutely essential It is certainly unwise to graduate a student who cannot differentiate syphilitic lesions from those of a similar type, or who cannot recognize the present mild form of variola and other exanthems

General practitioners should be able to recognize and successfully treat ordinary impetigo and typical scabies During vacation periods at summer resorts, or while traveling, it is frequently necessary for physicians to express an opinion on some acute cutaneous eruption, and a knowledge of the subject will frequently prevent serious consequences As examples of common errors, the surgeon is too eager to operate on a tuberous bromid or iodid eruption, and pityriasis rosea and German measles are frequently diagnosed as syphilitic

Elementary dermatology should have its place early in the curriculum Students must be taught the histology of the normal skin and to recognize such histopathologic changes of this organ as are of diagnostic value As the course progresses, various subjects can be considered in greater detail This should be done by means of lantern slides, colored photographs, microscopy and by clinical demonstrations

In addition to this required work, opportunity should be offered to students who desire to do special work in this branch of medicine As an elective course in the senior year, students should work in the outpatient department as clinical assistants In this way they have an opportunity of writing prescriptions, observing results of treatment and seeing the application of phototherapy, roentgenotherapy and carbon dioxid snow A knowledge of these different types of therapy can be acquired only by practical work

The teaching of syphilis should be closely allied to the teaching of dermatology, for the reason that the earliest manifestations are cutaneous, and students should be taught to recognize the disease *in its incipiency* The fact is well established that only on early radical treatment rests our hope of aborting the disease Ordinarily, patients prefer to have treatment carried on in one department, and it is advisable to have frequent consultations rather than to refer patients to another department of a teaching institution for a continuation of the treatment Accordingly, a general outline of the course of syphilis should be given at an early period in the tuition of a medical student This should include all of its manifestations, namely, the microbiology, pathology, cutaneous evidences of the disease, involvement of the circulatory, respiratory, alimentary, renal, osseous and nervous systems, etc Details of these conditions should be taught in general medicine and in the different specialties But the student should be taught that no matter where the evidence of syphilis is, this disease should be considered as a general infection, and needs prolonged treatment Many examples of syphilitic involvement of the iris are treated until the local condition clears and then discharged from further therapeutic interference, whereas the patient should have antisyphilitic treatment extending over many months after the eye signs of the disease have disappeared Such work should be followed up by those doing special work in syphilis or by the department of internal medicine Repeated consultations by neurologists, even in early syphilis, are advisable, and frequent serologic examinations are strongly advocated and may be of much value

When one considers the percentage of the population which is affected with syphilis, it is evident that we should lend our efforts to the control of the disease, and the best way to accomplish this is by early diagnosis and the proper treatment The examination of syphilitic lesions by means of the dark field microscope is not used as much as it should be Physicians are still inclined to wait for the so-called secondary syphilitic developments, but it must be emphatically impressed on medical students that all delays in diagnosis and treatment decrease the chances of cure This is partly due to the lack of proper instruction of medical students, for they should be taught that the early recognition of the disease should be one of the most important functions of the department of dermatology

Since cases of leprosy are increasing in this country, on account of closer relationship with endemic areas in our tropical possessions, a knowledge of this subject is most essential This, again, is a disease which usually is first evidenced by skin changes and therefore should be considered within the teaching range of the dermatologist In case the government decides to isolate all leprosy patients in one or more leprosariums, this subject should be taught in such an institution or by means of colored photography and lantern slides

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* Chairman s address read before the Section on Dermatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

There are a number of substantial reasons why photography, in its various methods of expression, must be considered as a valuable adjunct in the teaching of dermatology But one of these reasons stands ell out above all the others, namely, that by the use f the camera, visual records are obtained of the cases under observation

Photography is no longer limited to the record of a case in a combination of black and white and their respective tone values With a constant improvement in the manufacture of the autochrome plate and its subsequent treatment after exposure, a remarkably realistic reproduction of cutaneous lesions is quite within the reach of those who have only the ordinary training in photographic procedures The Lumiere autochrome product seems to have given in a general way the best results Autochrome plates of the "lantern size" type are unsatisfactory because of technical difficulties in their projection It is therefore the wiser selection to use larger plates, say 5 by 7 inches These are easily handled by observers, permit greater size-scope of the subject, and are quite well illuminated by any window of average size, even though there may be but indifferent light conditions

The black and white method of recording cases has at present two advantages over the autochrome method one that it permits more detail, and secondly that paper prints may be obtained from this type of making photo impressions

For projection exhibitions, the black and white lantern slides are most satisfactory Color may be added to these by the use of dyes and the brush, but, except for selected cases and in the hands of an expert colorist, this phase of photography is not to be recommended in the presentation of skin diseases to medical students

The advantage of having a serologic department connected with the department of dermatology cannot be overestimated Students should be taught the uses and abuses of the various serologic procedures now in vogue Only those students who are particularly interested in this subject should be taught the technic, but all students should be required to know how to interpret results and also to know the limitations of the various methods used

Medical students should be taught the importance of a social service department in connection with their hospital and outpatient work in dermatology Patients must be followed into their homes so that proper treatment can be carried on, the importance of continuing treatment after the disappearance of syphilitic manifestations must be urged, and proper methods of preventing the spread of disease must be instituted This should be brought to the student in two ways first by allowing those who work in the clinic the advantage of a well organized social service department, and second, by detailing students to work in the social service department itself

Modern investigation and research in dermatology indicate that there are many dermatoses associated with internal pathologic conditions Many types of eczema formerly thought to be the result of local trouble are now considered to be associated with focal infection and sensitization The various types of leukemia may produce dermatoses which can be classified only after repeated blood examinations Spontaneous disappearance of tuberculides after the removal of a local tuberculous focus points to the necessity of thorough general examinations The frequent association between changes in the thyroid, parathyroid and suprarenal glands, with cutaneous pigmentations and dystrophic changes in the teeth and nails, brings the subject of cutaneous diseases in still closer relationship with internal medicine

These points serve to emphasize the importance of treating patients with obscure cutaneous eruptions in a hospital where they can be studied from all phases by many physicians and observed by advanced students By this method, cases in which the etiology cannot be ascertained will have the advantage of study by the dermatologist, pathologist, chemist and the physician doing internal medicine, and in this collaboration rests the future in the study and development and teaching of dermatology

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SOME OBSERVATIONS ON THE TEACHING OF SURGERY*

JOHN ALLAN WYETH, M D, LL D
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NEW YORK

Every teacher recognizes the fact that success in the making of a surgeon depends, first of all, on the aptness of the pupil It may be true that "poets are born, not made," but years of patient toil in training await the making of a surgeon He must possess by nature those rare qualities which are essential to successful development His must be a brain not only endowed with an extraordinary power of analysis, but equally gifted in construction He must possess moral courage of that heroic type which recognizes in "duty" the sublimest word in our language, and physical courage which is not embarrassed by obstacles seemingly insurmountable, nor appalled, even in the presence of the Great Disaster

In the performance of a formidable operation, the surgeon stands in need of qualifications greater than those of the successful general, for while each must be quick to appreciate the kaleidoscopic changes in their respective fields, the commander relies on others for the execution of his orders the *hands* of the surgeon alone must meet the issue before him

May I emphasize the plural of these essential members, the hands? For of all the world's workers, the surgeon needs two hands, instead of one

Of the various problems in the development of our race to its fullest usefulness, the failure to appreciate the value of ambidexterity is to me the most inexplicable Bimanual deftness developed in the forming, the growing period, not only adds to technical perfection, but beyond all doubt aids in the development of both halves of the brain, so that these two halves, equally well nourished and alert, work together as one organ, if I may employ a homely simile, like the two horses of a well trained and well matched team, thus assuring the complement of mental energy

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* Read before the Section on Surgery, General and Abdominal at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

Physically, mentally and morally qualified, the embryo surgeon enters the laboratory, for on this foundation must rest the hope of efficiency Only a thorough knowledge of the normal tissues can render possible the recognition of the many morbid changes which are characterized as disease By the laboratory is implied not only microscopy and organic chemistry, but also normal and abnormal or morbid anatomy, and animal experimentation In the mastery of regional anatomy, the employment of frozen sections is essential, and while the perfection of modern photography enables the student to preserve accurate pictures of the sections, nothing serves to fix the relations of the tissues in the mind so well as hand tracings on frosted glass, laid directly on the section

While in the teaching of clinical surgery, some general idea of the technic may be obtained by observation, from points more or less removed, in the ordinary amphitheater, the practical knowledge which is absolutely essential can be acquired only by immediate personal contact The hospital intern reaps invaluable benefit from his position as assistant at the elbow, or across the table, from the master, and if he be wise, and the teacher foresighted, he will be made to follow each case throughout the postoperative period, even to the necropsy, where the bitter lesson of error in diagnosis or technic may often be profitably emphasized

Year by year, in our work at the polyclinic, we have approached what we now call the "group method of personal instruction," allotting the role of intern or assistant intern to the student who, after the required preliminary term of service, having demonstrated, in our judgment, a justifiable fitness, is allowed to operate under immediate supervision and guidance

With the advent of motion picture photography, we began, and are still carrying on, experimentation, in order to satisfy ourselves of the value of this means of demonstrating operative technic to our classes Operations on the cadaver and the living subject have proved fairly satisfactory, and we incline strongly to the opinion that, with an improved apparatus and wider experience on our own part, as well as on the part of the mechanician, still better and even more satisfactory results may be achieved

A gratifying feature of this particular work is that it makes it possible to lend these films to medical societies in all parts of the country, thus enabling many practitioners who cannot find time to visit the central clinics to profit by these attractive demonstrations

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ABSTRACT OF DISCUSSION

Dr Arthur Dean Bevan Chicago I am not sure whether these moving pictures will have any great value in the teaching of surgery or not They have a certain value but I do not think they in any way replace the actual work on living material itself In the discussion of the teaching of surgery we must differentiate between two very definite and distinct things, the teaching of surgery in the medical school to men who are being prepared to become general practitioners, and the teaching of surgery to men who are to become surgical specialists in various fields I shall not go into the details of the teaching of undergraduate surgery I would like to emphasize the point, however that it must be very largely done with actual material in the hospital and dispensary and a part of that teaching even for the man who is to become a general practitioner must be at least a year in a hospital as an intern Most of us received our surgical training either in a medical school alone or in a medical school with the addition of a hospital internship, and there was a time when men who had this hospital year were regarded by those who had not as being fortunate and as having had a great advantage Today there is a demand for a better type of surgeon than the man who starts in simply at the end of his college work in medicine or even with a hospital internship I believe that the time has come when the members of the organized American profession should recognize the fact that in order to be a skilled specialist in any surgical field that there is required more than the mere training in the college and the hospital internship It is our duty to provide some scheme for additional special training of at least two or three years of work in our best clinics, in our best surgical departments, in our best hospitals We must provide some means by which these young men who come to us anxious to specialize in some surgical field will be able to receive the necessary additional instruction, i e two or three years of work in a surgical clinic as an assistant in some well organized clinic To do this we must do another thing Many men who go into medicine have very little money They cannot afford to spend two or three years to prepare themselves for special work in surgery For these men we must provide salaried surgical fellowships, salaried house surgeonships They are sometimes the very best men that come to us

Dr Thomas A Stoddard, Pueblo, Colo We are told many of the things that a medical student must have to perfect himself in surgery But not all of the things have been mentioned He must have teachers That is very important Neither the profession of medicine nor any other is blessed with many giant intellects in the line of teaching And when we take into consideration the fact that many of our teachers are chosen because they have a "political pull," if I may use that expression, and not because of any fitness on their part to convey ideas to the students, then we must realize that it is a most important question that we have before us The ability to teach does not come by education It is intuitive Not many, in the aggregate, are able to convey to others the ideas that they possess Not only must we be able to convey to students' minds the proper methods of operative procedure, when it comes to surgery, but more important, when to operate, and most important of all, when not to operate The honor of the profession is forgotten too frequently in our rush for new operative procedures, and we must teach our students that there is something more necessary than the ability to cut tissue to tie a vessel

Dr Henry O Marcy, Boston Years ago Marion Sims was in the forefront as one of the great surgical pioneers John A Wyeth married his beautiful daughter and you can see where Marion Sim s work has fructified in that which was shown you this very day Our beloved Dr Wyeth found his inspiration and his encouragement in the greatest of home influences A large circle of devoted friends mourn the recent death of this most noble woman, Florence Nightingale Sims

> Star of the North thou most constant star,
> Wherever I wander o er the land or sea
> Beacon of hope still shining from afar
> Unto the heaven of rest thou guidest me

Dr John A Wyeth, New York I agree fully with Dr Bevan, that moving picture demonstrations of operations can never take the place of that better method of teaching surgery the group method" and the "intern method ' That the moving pictures will find a large field, I have no doubt, especially in demonstration of the grosser technic of certain surgical procedures to larger audiences than can be benefited by the group method We still use the amphitheater method with great satisfaction to our students, but we are employing more and more each year that method which allows not more than four or five of our students to be present around the operating table at any one procedure, and as a rule, some of these are being trained as assistants We are now going further than this with what we have termed our "assistant intern method' With the very large material at our command and a large staff we are enabled to assign a pupil who takes a course of study for six months to one year, or longer, to two operators, to each of whom he serves as second assistant half of his term, and as first assistant for the remainder, during which later period, if he has demonstrated ability to operate within perfect limits of safety to the patient, he is allowed the same privileges that are granted to interns on the hospital staff in the last months of their service This method we find has given us more satisfaction as teachers than any other

HOSPITAL INTERNSHIP *

J M BALDY, MD,
PHILADELPHIA

To demand a year or more of time of a young man just leaving the medical schools after having undergone all the sacrifices necessary to his medical education is a serious matter, especially when we consider the age at which the average medical student leaves the medical school Consequently when the state demands an internship of a period of time in a hospital, it is bound to see that the hospital providing this internship is capable of returning to the intern a competent *quid pro quo* for his time and his sacrifice This means the standardization of hospitals just as medical schools have been standardized and are still in process of being standardized

It is not the intention to discuss in detail the organization of all departments of a hospital, this has been done many times by others well qualified to do so, and a fair understanding obtains as to these matters Rather is it the intention in a general way to call attention sharply to those departments which really go to make up a true hospital but which, in the course of a systematic and fairly exhaustive inspection of over 200 hospitals, including state owned hospitals, the Pennsylvania medical authorities have found to be generally ignored, or if in existence at all, were in such a large number of instances found to be so poorly developed as to be worthless for the purpose of proper and efficient scientific work, either as aid to proper and accurate diagnosis or as useful for instruction of an intern

The question then primarily arises, What is a hospital? From the point of view of the internship it is utterly impossible to consider many institutions at the present time calling themselves hospitals, under this designation In constructing a true hospital, certain scientific departments should first be provided for, the balance of the hospital should be built around these departments Principally these departments are the pathologic and clinical laboratories, the Roentgen-ray department, the anesthetic department, the morgue and the necropsy room, and a competent system of record keeping throughout the whole institution These things are as necessary as is a kitchen, a laundry, a superintendent's office, a boiler house, the medical and surgical wards, or any other essential department, and no institution should be dignified with the name of hospital without each and all of them being competently provided for It were supererogation to state that medicine cannot be competently practiced or taught today without the aid of these departments, and if this be true, then it follows as a matter of course that the intern cannot be competently educated in an institution which does not provide these facilities, nor can the patient submitted to its care receive the full benefits possible from modern medicine. In attempting to do so, an institution does not give either the intern or the patient a fair and proper service

For an institution to have these departments within its walls is not sufficient Their establishment and equipment carries with it the supposition that they must be administered by a proper personnel By a proper personnel it is not meant that figureheads be appointed for this work, but that men and women with a full technical knowledge of the work of the various departments, aided by competent assistants, be in control, that these heads be active in their duties, and that they be of such a type as to be able to impart a knowledge of the work as well as perform the work of their several departments Furthermore, it does not mean that these departments should exist in the hospital and not be used by the medical and surgical staff It is perfectly patent that in many hospitals the staff, in many instances, is composed of men unfitted for the work assigned to them — unfitted not only as teachers of the intern but also to give that service to the patients submitted to their care which should be given, in accordance with the possibilities of modern medicine

The efficient handling of the scientific departments means team work on the part of every one throughout the whole institution Staff men who neglect the opportunities offered by the scientific departments should be promptly retired and should be no longer tolerated in the hospital's service Team work involves not only the cooperation of the staff men with the laboratories, but also the cooperation of the superintendents and boards of managers If a sufficiency of budget is not provided, competent work cannot be done in the scientific departments for lack of means in the doing Consequently boards of managers should include in their budget ample funds for carrying on the work of these departments

Superintendents should so arrange the details of their superintendency that certain routine work goes daily to the laboratory, whether or not the staff men make the request For instance, all tissue removed in the operating room should be sent as a routine to the laboratories for investigation; certain ward material should be taken as a routine to the laboratories for examination, the milk and water used in the institution should be investigated systematically and periodically, it should be a matter of routine that all vaginal secretions of children, smears from throat infections, sputum in possible tuberculous cases and various other conditions should be carefully studied If staff doctors do not care for the information derived from these sources, the patients are nevertheless hospital patients and the hospital should secure the proper data for their own uses and records The staff man who does his duty and is worthy of appointment will use the laboratories freely in many ways Without this no hospital is doing its full duty to its patients, and it is entirely neglecting its duty to its interns The hospital function involves the proper scientific treatment of its patients, and the education of the intern as its principal functions, this to be supplemented by the investigation of new remedies and by research work in the larger institutions

No institution in these days of workmen's compensation acts can do justice to its clientele, whether workmen or employers, without the full and competent use of the Roentgen-ray apparatus It is not sufficient that the function of this department be confined to primary diagnosis Diagnosis is of course one of its principal functions, but there follows immediately thereafter the great importance of record keeping To illustrate For the hospital to assume, in the case of a fracture or dislocation, that its duty is fulfilled when the picture of the injury is recorded, is erroneous The condition of this injury at the time of discharge and supposed cure is equally as important, and should in every instance be recorded, and the records, in the shape of the roentgenogram, should be properly filed and preserved for a period of years

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* Read before the American Academy of Medicine, Detroit, June 9, 1916

The education of the intern in the matter of correctly reading plates and interpreting them is equally a function of this laboratory And no such laboratory is complete which is not equipped for and actively engaged in treatment work

Records in all departments of the institution are a requisite of a properly standardized hospital These records should cover as a minimum, alphabetical admission card, a record card according to diseases, history sheets, temperature charts, order sheets, bedside records, operative and anesthetic records, laboratory request and findings sheets with card index in the laboratory, request and findings sheets with card index in the Roentgen-ray department, and follow-up cards, all carrying the house number The laboratory and Roentgen-ray number should appear on their respective request sheets In addition to this in the laboratory there should be filed seriatim, with the laboratory number attached, all slides and paraffin blocks In the Roentgen-ray department all plates, having attached the Roentgen-ray laboratory number, should be filed seriatim It should be essential in every hospital not only that these records be in existence, but also that they be systematically and fully recorded and then properly filed Here again without competency in the superintendency the situation becomes hopeless Records properly kept are a source of education to those making them, are a source of the utmost value to future diagnosis and medicolegal matters, are a source of demonstration of the efficiency of the work done in every department, and of those in control of the work, and are a fund of information for the boards of managers as to the competency of superintendents, interns and of members of the medical and surgical staff By reference to the laboratory records filed in the office, any board of managers can tell promptly which members of the medical and surgical staff are engaged in the scientific practice of medicine and which are mere "prescription writers," and consequently which should be retained on their staff

The intern cannot receive a competent service in an institution which is manned by a staff whose members walk through their wards, spend a few minutes with their patients, make few or no scientific investigations, do not discuss their cases, and merely prescribe drugs Such a service is worse than useless to the intern, and in nine cases out of ten it is equally useless to the patient The intern is entitled to a fair measure of instruction, and the authorities should demand that its staff members explain their cases to the intern in the course of the rounds and that the service be made a real educational one

It is rare that the intern will receive any competent service in the hospital which opens its doors to all the doctors in the community in which it exists A standard hospital should have a staff carefully picked for its competency in all departments, and the work in the wards of the hospital should be confined to this staff The intern should receive a rotary service throughout all departments, the service being so arranged that he will receive a maximum of time in each In a year's service in a hospital he should have a minimum of two months in the laboratory alone without any other service whatever complicating, and the better time for this service is in the early part of his internship During this service he should be at the command of the pathologist alone, and his full time daily should be spent in this department If it is necessary that this service, because of the number of interns employed in the hospital, be combined with, for instance, outpatient work or surgical dressing work, then the time in the laboratory should be increased to three months or more in order that the intern shall have received the equivalent of a full two months' service, as a minimum It goes without saying that it is desirable that the laboratory service be complicated with no other service whatever

The anesthetic department should be under the direction of a member of the staff, this member to have at least one trained full-time individual, preferably a woman, as assistant During the service of the intern in this department, which should be a distinct and definite service, there should always be a watchful hand kept over him during each administration of anesthesia, throughout his full term To simply instruct a new intern, fresh from college, for a week in the giving of anesthesia, and then to allow him to administer it for the next two months without supervision, is not competent either for the safety of the patient, for the comfort of the surgeon or for the education of the intern, and should not be tolerated One or more full-time individuals in this department are a necessity in a modern hospital, and should be insisted on The work of the anesthetizer should be to administer anesthesia in certain cases and to educate and supervise the intern when giving the anesthesia, throughout his full service A physician living out of the hospital and practicing medicine is not competent to undertake this work few hospitals can afford a physician on full time for such work A reasonable solution is the woman anesthetist, preferably a former trained nurse especially instructed in these matters In small hospitals a very competent and economical arrangement may obtain by which the laboratory technician and the anesthetizer may be combined in the same individual the responsibility of seeing that the records throughout the hospital are properly recorded and filed might in some instances be properly placed in the same hands

The lack of interest in necropsy work in America is usually attributed to difficulty in obtaining material for this purpose, but as a matter of fact is largely due to indifference on the part of the hospital authorities An effort should be made in every instance, especially in an institution with educational pretensions, to obtain this material, the pathologist might obtain many a consent if he be given an opportunity to do so It is plainly evident that the less work of this kind performed, the less efficient is the staff, the less reliable are the records, and the less vital is the instruction received by the intern This indifference is one of the greatest defects of the American hospital, and a supreme effort should be made to rectify it

2219 Delancey Street

Chronic Diseases and Advertised Remedies.—It is safe to say that most advertised remedies for chronic disease are actually harmful in such conditions —*Health Letter* Life Extension Institute

THORACIC DISEASES

THE STATUS OF SURGICAL THERAPY *

SAMUEL ROBINSON, M D
Fellow of the American College of Surgeons
ROCHESTER, MINN

In addressing, single handed, a group of practitioners of internal medicine, I realize that I do so at my own risk I beg your indulgence, however, for my theme is one which vitally concerns us all

The treatment of diseases of the lung, pleura and mediastinum is in a lamentably chaotic state Much has been written on the pathology, bacteriology and clinical picture of thoracic diseases But what are we doing which is curative for the mortals thus afflicted? Are we not grossly incompetent? Is it not probable that more cooperation between the internist and surgeon might result in better treatment of the patient? Is the surgeon operating on lesions which the practitioner might cure? Is the practitioner treating some patients unsuccessfully whom the surgeon might cure? Are we sufficiently familiar each with the other's more recent advances in therapy? Or have we perhaps made no advances?

The thoracic cavity is too treacherous a region to become the scene of pastime surgery The thorax surrenders all playground titles to the pelvis

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No region in the body demands the combined efforts of physician and surgeon more than the pleural cavity The internist occasionally needs the surgeon, and the surgeon never ceases to require the conservative help of the physician Therefore, kindly regard us thoracic surgeons as your servants rather than as your substitutes, as your consultants rather than your competitors

If we are to be your servants we must convince you that we are neither presumptuous, bold nor boisterous, but rather cautious, conservative and conscientious

You will find us useful and safe in the treatment of postpneumonic abscess We are not unmindful of the high percentage of spontaneous cures by bronchial drainage alone We urge, however, the privilege of early consultation that we may aid in determining the point at which spontaneous recovery is doubtful and at which the operative risk begins to increase In such cases, ours is a record of extremely low mortality

In chronic lung abscesses we are less successful We drain single abscesses and overlook others We allow our drainage tubes to produce lung necrosis and fatal hemorrhage We would welcome the exclusion of this group of cases from the surgical field We watch with interest your efforts with vaccines, climatic influences and hygiene, but we grieve at your limited accomplishments

We believe that early compression therapy in chronic abscess cases will do great good If you are unsuccessful in collapsing the infected lung with artificial pneumothorax, we would much prefer to operate to strip adhesions, thus facilitating the collapse which you will maintain later, than to be requested at a late hour to perform a drainage operation in a thoroughly septic patient

Bronchiectasis would seem to be a chronic, incurable disease The records are hopelessly void of successes without surgery and painfully attended with fatalities by operation We venture to suggest that the practitioner withhold such patients with even more than his accustomed tenacity; not obstinately, however, but intelligently

In true bronchiectasis, expectorants, inhalations, cough mixtures, climatic changes and vaccines fail Artificial pneumothorax has been reported as curative I entertain grave doubts as to the truth of such reports Either the reported cases have not been true bronchiectasis or a cure has been claimed merely because of a considerable temporary reduction in the quantity of sputum In three cases of bronchiectasis confined to one lower lobe I have packed the lower pleural cavity with many yards of gauze A chronic empyema has been artificially produced with incarceration and compression of the diseased lobe The quantity of sputum has been slightly reduced, otherwise the disease has continued unaltered If such radical compression fails to obliterate the cavitations and to produce cicatrization, how much less will the intermittent maintenance of artificial nitrogen pneumothorax accomplish?

Further, do not invite or permit a surgeon to drain your case of bronchiectasis He will do no good and possibly much harm

Assuming the correctness of my contention that expectant treatment, vaccine therapy, artificial pneumothorax and drainage operations are valueless in bronchiectasis, we ask what can be accomplished with our present knowledge? In eight or nine cases out of ten, absolutely nothing which is curative In the tenth case, however, with the process confined to one lower lobe in a young adult patient with good resistance, further consideration is to be entertained Look on the pathologic condition of the diseased lobe as beyond hope of correction except by actual removal Let no man attempt a lobe excision in a single operation Your otherwise comparatively content and even efficient patient, if thus treated, will soon be dead A single lobe of the lung may be removed safely in a three-stage or four-stage operation, which I have described elsewhere Within a year a small series of cases thus treated will be reported The results so far are certainly most promising Meanwhile we remain hopeful and open to conviction that internists will substitute a nonoperative cure, the surgery of bronchiectasis is at best treacherous and laborious, and, to say the least, filthy

Emphysema is another stumbling block and again a chronic pathologic condition Surgery offers but one operation, namely, the removal of several costal cartilages on one or both sides It accomplishes increased mobility and expansion of an otherwise rigid thorax In a considerable proportion of cases it relieves distressing symptoms It does not cure Heart and kidney complications and suppurative bronchitis are contraindications Much reduced expansion is the sine qua non of indications We have too few results on which to base definite opinions as to the value of this procedure, but inasmuch as it is comparatively safe, we urge you to submit cases that we may both know more as to its real significance

To spare you the mortification of accusing us surgeons of incompetency in the handling of pleural empyema, I will make a series of confessions Not

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* Read before the Section on Practice of Medicine at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

infrequently we operate for acute empyema and fail to find pus at the very point at which you have recently located it with a needle You may justly contend that our methods of exploring the pleural cavity are inadequate If a finger thrust through an opening made by the removal of a half-inch of rib fails to strike pus, naturally you cannot be entirely satisfied that it is absent Having urged the internist to prevent the occurrence of chronic empyema by the early detection of pus following pneumonia, we sometimes so badly handle an acute case that it is soon converted into a chronic case We fail to place the drainage tubes at the bottom of the cavity We either apply suction at the expense of drainage or we drain without providing for the expansion of the lung

These and numerous other surgical errors it is well you should know You have much to do with the postoperative conduct of empyemas and are justified in demanding that such surgical fallacies be corrected that your patient may more promptly recover If an operative case of acute empyema is still draining at the end of eight weeks, do not remove the drainage tubes and trust to the Almighty, do not inject various pastes and solutions or administer vaccines until you have called back the surgeon Point out to him that the Roentgen ray shows lack of lung expansion, introduce a probe and demonstrate the persistence of a considerable cavity Remove a small piece of tissue at the mouth of the drainage opening, and have a section made and examined for tubercles Be satisfied only by this procedure as to the possibility of a tuberculous empyema (Cultures and guinea-pig inoculations from the purulent discharge will rarely prove the presence or absence of tuberculosis) With such data at your command, the surgeon may admit that the delay in healing is mechanical He may advise redrainage and freer drainage at a lower point He should consider the advisability of opening the chest widely and freeing the lung of its adhesions to prevent such fixation as will otherwise result in a chronic empyema

If despite all such further efforts an empyemic discharge continues four and five months, another surgical consultation is indicated Probably then a decortication of the lung or some form of osteoplastic operation is indicated to obliterate the cavity If such is done early when the ultimate necessity is obvious healing may be complete in less than a year It is criminal that these patients should be allowed to drift along with chronic sepsis into amyloid disease

Vaccines may be employed to lessen the profuseness or foulness of drainage, but if designed as a curative measure necessary surgical measures will be detrimentally postponed Bismuth and petrolatum should be used in very small cavities, and only when the need of further surgery is excluded

Of course, the surgeon is essentially at fault in that he does not follow the progress of each patient with empyema whom he operates on in the acute stage, but I dwell on this subject of empyema to emphasize that surgery properly and persistently applied is the best, if not the only means of cure After the primary operation the patients return to you, essentially, perhaps, because the surgeon neglects to follow their convalescence Apologetically, therefore, we ask your assistance and urge you to demand further surgical intervention when the obliteration of empyema cavities is obviously not progressing

In the management of tuberculosis, the practitioner has ceased to look to the surgeon for help Ten years ago, when the experimental removal of large portions of the lungs of animals was first successfully executed, we wondered if such might be possible and feasible in tuberculosis in man Thus far, however, such is not the case The removal of the diseased lung of man is associated with obstacles not present in the excision of the normal lung of a healthy dog Respiratory and circulatory disturbances occur in the process of intrathoracic operating which we are struggling to interpret and overcome, and in the diseased person these complications are exaggerated The tuberculous patients is *a priori* a poor surgical risk and the outlook for successful extirpation of tuberculous lung tissue is particularly discouraging You read of collapsing the tuberculous lung by an extrathoracic operation, pleuropneumolysis, or the resection of numerous ribs to collapse the chest wall and, therefore, the lungs Let us suspend such radical and dangerous experiments until we have learned more of the actual value of collapse therapy by artificial pneumothorax We surgeons may well await your developments with this harmless method before substituting a method that is dangerous For the present, at least, in those cases in which adhesions prevent the introduction of gases into the pleural cavity, let nature rather than ill-applied surgery take its course

We do not regard the drainage of tuberculous cavities as a profitable surgical measure At present writing the only justifiable mechanical procedure in pulmonary tuberculosis is collapsing the lung by the introduction of nitrogen or fluid into the pleural cavity This treatment is carried on very properly by internists Suffice it to say that collapse therapy has almost a specific effect in the arrest of pulmonary hemorrhage In progressive cases with unilateral or even bilateral involvement, symptomatic relief can be expected in 40 per cent of the cases in which collapse is conscientiously maintained The disease is arrested in a considerable number of cases of the progressive type, 13 per cent would not be an exaggerated estimate

I am involved in the study of a group of cases which we have doubtless misinterpreted We see swellings on the chest wall, generally on the anterior side There is some fluctuation, but no redness or tenderness for many weeks Eventually they rupture or are incised They then discharge pus and finally a bloody, watery secretion These swellings are called cold abscesses, tuberculosis of the ribs, and necrosis of the chest wall Stereoscopic radiograms should be taken in each of these cases One generally finds the shadow of a localized pleurisy in the region of the swelling Operation performed as an excision or dissection reveals a minute fistulous opening between two ribs leading to the outer surface of the parietal pleura The ribs are almost never necrosed It is often impossible to find either bacilli or tuberculous tissue Nevertheless, the conduct of the lesion in every way resembles that of a tuberculous process

Drainage alone in these cases has no curative effect, and excision of the abscessed area alone is likewise inadequate However—and here the internist's cooperation is imperative—free drainage or excision, plus the maintenance of the hygiene advised for tuberculosis, is the sole source of success Either one is valueless alone, but in combination the healing of an otherwise chronic discharging focus may be effected In other words, the treatment of the case as one primarily of tuberculous pleurisy, which time will prove to be the basis of such lesions, in conjunction with free abscess drainage, is the treatment of choice

THORACIC DISEASES

THE STATUS OF SURGICAL THERAPY *

SAMUEL ROBINSON, M.D.
Fellow of the American College of Surgeons
ROCHESTER, MINN.

In addressing, single handed, a group of practitioners of internal medicine, I realize that I do so at my own risk. I beg your indulgence, however, for my theme is one which vitally concerns us all.

The treatment of diseases of the lung, pleura and mediastinum is in a lamentably chaotic state. Much has been written on the pathology, bacteriology and clinical picture of thoracic diseases. But what are we doing which is curative for the mortals thus afflicted? Are we not grossly incompetent? Is it not probable that more cooperation between the internist and surgeon might result in better treatment of the patient? Is the surgeon operating on lesions which the practitioner might cure? Is the practitioner treating some patients unsuccessfully whom the surgeon might cure? Are we sufficiently familiar each with the other's more recent advances in therapy? Or have we perhaps made no advances?

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Bronchiectasis would seem to be a chronic, incurable disease. The records are hopelessly void of successes without surgery and painfully attended with fatalities by operation. We venture to suggest that the practitioner withhold such patients with even more than his accustomed tenacity; not obstinately, however, but intelligently.

In true bronchiectasis, expectorants, inhalations, cough mixtures, climatic changes and vaccines fail. Artificial pneumothorax has been reported as curative. I entertain grave doubts as to the truth of such reports. Either the reported cases have not been true bronchiectasis or a cure has been claimed merely because of a considerable temporary reduction in the quantity of sputum. In three cases of bronchiectasis confined to one lower lobe I have packed the lower pleural cavity with many yards of gauze. A chronic empyema has been artificially produced with incarceration and compression of the diseased lobe. The quantity of sputum has been slightly reduced, otherwise the disease has continued unaltered. If such radical compression fails to obliterate the cavitations and to produce cicatrization, how much less will the intermittent maintenance of artificial nitrogen pneumothorax accomplish?

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* Read before the Section on Practice of Medicine at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

the difficulty If anywhere, then here internist and surgeon must work together Regarding the diagnosis of esophageal affections A patient who experiences difficulty in deglutition will always first consult an internist Let the latter then remember, that, with the single exception of the presence of an aortic aneurysm, every one of these patients represents a surgical case The paramount necessity for carcinoma is the early establishment of the diagnosis Here the Roentgen ray next to esophagoscopy promises to become of greatest help to us

Dr Frederick T Lord Boston As an internist I want to endorse the plea made by Dr Robinson and by Dr Meyer that the physician and the surgeon work together in these thoracic cases Pulmonary abscess usually comes first under the observation of the physician on whom falls the responsibility of recognizing the nature of the process and the indications for surgical intervention It should be appreciated that acute abscess is far more amenable to surgical treatment than chronic abscess and that by delay in the consideration of surgery a favorable opportunity for relief may be lost Dr Meyer referred to the frequency with which pulmonary abscess follows operation on the upper parts of the respiratory tract and this has recently impressed me also Of 206 cases in our series, the pulmonary abscess followed the removal of tonsils or adenoids, the extraction of teeth, operations on the nasal septum or about the mouth in nineteen—or about one in every ten cases An interval of from one to four days usually intervenes between the operation and the onset of symptoms The right lower lobe was involved in about one half the cases Nine patients died This is not the only field, however, in which surgery is to be accounted a contributing cause of pulmonary disease

About one quarter of all deaths following operations under general anesthesia are due to lung complications of which bronchopneumonia and less often lobar pneumonia are the most common and serious The aspiration of infected blood or tissue is the usual cause of pulmonary abscess following operations on the mouth or nasopharynx, and an acute infection of the respiratory tract existing at the time of the operation is responsible for a considerable proportion of the postoperative pneumonias It is our duty to see that due consideration is given to the indications for operation in the acute cases lest we become responsible for the progress to a less favorable chronic stage of the disease Spontaneous recovery is to be expected in only a small number of cases It was noted in only five of 206 cases of pulmonary abscess in our series The usual termination of acute abscess is either in death or in permanent damage to the pulmonary tissue. In the milder acute cases in which the pulmonary lesion is small without marked symptoms of sepsis, with purulent and not foul sputum, without a large amount of elastic tissue or lung shreds, the usual medical treatment under close observation with the surgeon may be tried for three to four weeks In the absence of favorable progress at the expiration of this period operation should be considered When, on the other hand, the abscess is large, accompanied by marked symptoms of sepsis and with foul sputum and abundant lung shreds a resort to immediate operation is imperative Vaccine treatment of abscess seems to be a futile and irrational procedure I cannot agree with Dr Robinson that collapse therapy is a desirable procedure in chronic lung abscess or in the treatment of pulmonary hemorrhage due to tuberculosis Sudden death from air embolism, collapse induration of previously uninvolved parts of the lung, and extension of suppuration from the lung to the pleura by rupture of adhesions are dangers which cannot be disregarded To these dangers is added the almost even chance of compressing the wrong side of the chest in the attempt to treat hemoptysis due to pulmonary tuberculosis by this means

Bronchiectasis is fortunately of rare occurrence being noted in only about one in one thousand clinical cases and five in one thousand necropsy cases in our series Isolated saccular bronchiectasis may be found unexpectedly and treated successfully surgically When the bronchiectasis and complicating bronchopulmonary infection is sufficiently extensive to involve one or more lobes of the lung incision and drainage of a large cavity may ameliorate the symptoms Pneumectomy and even lobe-excision are such desperate measures as to exclude them from serious consideration by any one anxious for other than relief or death Regarding the treatment of acute empyema, immediate and free drainage of the pus is essential for prompt and permanent relief with the following exceptions If the pus is sterile or contains tubercle bacilli alone, removal by thoracentesis is the procedure of choice and should be repeated at sufficiently frequent intervals to prevent the fixation of the lung in an abnormal position Empyema complicating advanced pulmonary tuberculosis is also best treated by puncture In patients who are gravely ill open incision and free drainage is often followed by a rapidly fatal termination and removal by thoracentesis is to be preferred as a preliminary to operation or as a life saving measure

Dr Samuel James Meltzer, New York I would like to suggest the attempt to treat some cases of bronchiectasis by the following method It is easy to introduce a tube into a bronchus, especially in that of the right side Would it not be possible and advisable, when, for instance, the bronchiectasis is in the right lung, to introduce a tube as far as it will go, and then, after retracting it for about five millimeters to inject a weak solution of nitrate of silver? The tube should have its opening at the end, it should not be a catheter It may be advisable, before using the solution of nitrate of silver to remove some of the pus from the cavity by blowing it out The entire procedure, of course, would have to be repeated many times I agree with Dr Robinson that an exploratory thoracotomy, which may be followed by an operation, is indicated in many cases I wish Dr Robinson would tell us what he thinks of the practicability of my suggestion

Dr Samuel Robinson, Rochester, Minn In reply to Dr Meltzer's suggestion as to the advisability of irrigating the bronchial tree with solutions such as silver nitrate Of course we look on Dr Meltzer as the authority in intratracheal insufflation, and while I have had no experience in irrigation therapy through the intratracheal tube, Dr Meltzer would doubtless be interested to know the recent experience which I have had during the intratracheal anesthesia of a patient with bronchiectasis Inserting the intratracheal tube in the usual manner, suction rather than insufflation was applied to the tube removing purulent secretion throughout the operation Meanwhile, the anesthesia was carried on by the drop method, the intratracheal tube coming out of the corner of the mouth under the mask Fluid has been introduced into the bronchial tree and removed by suction, but as to the therapeutic value of this procedure in bronchiectasis, I do not know

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THE USE OF CHLOROFORM IN THE FIRST STAGES OF LABOR*

ISADORE HILL, MD

NEW YORK

In the world at large, in hospitals and private practice, both in town and in the country, chloroform is still the anesthetic most largely used in obstetrics It has survived many eras of criticism In Simpson's[1] early exploitation of it some of the objections encountered were the alleged production of epilepsy, insanity and septicemia and the pious belief that it was sacrilegious to remove the sorrows of childbirth

Later, when deaths were found to be more frequent from chloroform than from ether in surgical anesthesia, its use in obstetrics was criticized But chloroform accidents in midwifery were almost unknown On its own merits it prevailed again on the evidence of experience, and theories were advanced to explain an apparent special immunity in labor

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* Read before the Section on Obstetrics Gynecology and Abdominal Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Simpson J Y Account of a New Anesthetic 1847

At present we are in a period of active criticism of its use because of late chloroform poisoning with degeneration of the liver and other organs

At an obstetric meeting a few years ago, a pathologist in discussion[2] said that chloroform was shown to have toxic effects and that in its use obstetricians were the worst offenders

An obstetrician of wide experience in reply said that he had never seen harmful results[3] from chloroform in labor and did not believe its use was dangerous

This expression of divergent opinions by the pathologist and the clinical observer represents fairly well present status of this narcosis in midwifery Very ently a tendency is shown on the part of the obstetricians to yield their position based on experience to the findings of the experimentalists We find some hospitals have given up the use of chloroform entirely because of its late toxic effects[4] Current medical literature shows little or nothing written in favor of chloroform in obstetrics, yet its use continues It is time to rehabilitate or abandon it We cannot go on with the surreptitious use of this narcosis as if it were a secret vice

To ask the abandonment of so widely used a drug we should expect pathologic evidence proportionate to its exhibition Choloroform has been used in labor millions of times We could reasonably expect some worker to gather statistics showing results of some hundred necropsies in women dying from its use in normal childbirth

H Roulland[5] in 1910 gathered a series of reported cases of late chloroform poisoning Among them was one by Fraenkel[6] in 1892 of a woman dying twenty days after labor with fatty degeneration of kidneys and heart The liver was not mentioned in Fraenkel's article There was thrombosis of the large pelvic veins and death occurred suddenly from pulmonary embolism

In the other cases assembled by Roulland from the time of Casper[7] and Langenbeck,[8] from 1850 to 1910, the date of his article, the deaths (less than twenty) were found to follow surgical anesthesia in operations for various diseases, including suppurations of long standing

Von Braeckel[9] reports two cases in surgical anesthesia and ascribes the liver damage to deficient glycogen

Moran[10] reported a delayed chloroform death after
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After the report of the Hyderabad Chloroform Commission[11] a controversy raged, in which apparently everything that could be said about chloroform was published Lawrie[12] showed a series of 45,000 chloroform anesthesias without a death Patrick Hehir[13] reported giving chloroform continuously for over twelve hours in three cases of eclampsia, with recovery Although every unfavorable narcosis event in contemporary medicine was also brought to light, it is noteworthy that no untoward occurrence was mentioned concerning chloroform in labor

More recently Eisenberg[14] reported no late injurious effects even in prolonged obstetric chloroform anesthesias and advocated its extensive employment in labor[15]

Leading obstetricians and practitioners of wide experience, such as Georghi,[16] Engel,[17] Veit,[18] Tissier,[19] Muller,[20] Flammer[21] and Buxton,[22] all bear favorable testimony based on extensive clinical material

With the overwhelming clinical evidence of safety on the one hand and the scant pathologic findings on the other, it is apparent that some other factor must have caused the obstetricians to distrust their time-honored anesthetic This has arisen from animal experimentation

The earlier work of Nothnagel,[23] Thiem and Fischer[24] and others does not seem to have had much influence on clinicians We begin to see a certain reflection in obstetric juornals from the observations of Doyen and Billet[25] and particularly of John Howland and A N Richards,[26] who made numerous experiments in chloroforming animals, revealing subsequent changes in the liver and kidneys Whipple and Sperry[27] did similar work Fischler[28] produced the lesions, but ascribed only an indirect influence to chloroform Clark[29] showed that pregnant animals have no special immunity to chloroform poisoning

Donzelli,[30] Delbert, Herrenschmidt and Beauvy,[31] C Oliva,[32] G S Graham[33] and others have made a special study of changes in the suprarenals

Evarts Graham,[34] in a particularly convincing work, has produced necrosis in guinea-pigs and dogs, and has shown that the damage takes place through the liberation of hydrochloric acid He has found that when alkalies are simultaneously administered the destructive effects of chloroform are inhibited

Most of the experimentalists who have shown changes in the organs have called attention to the extremely rapid and complete regeneration which takes place, the tissues appearing normal in a few days

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[16] Georghiu Zentralbl f Gynak, 1918, xxxiv, 888
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[22] Buxton Anesthetics, Their Use and Administration, Ed 5, Philadelphia 1914
[23] Nothnagel Berl klin Wchnschr, 1866, iii, p 111, p 31, p 367
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[27] Whipple and Sperry Bull Johns Hopkins Hosp 1909, xx, 278
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[29] Clark Glasgow Med Jour, 1914, lxxxi, 33
[30] Donzelli Arch di farmacologia sper, 1911, xi, 51
[31] Delbert, Herrenschmidt and Beauvy Rev de chir, 1912, xlv, 544
[32] Oliva, C Tr Int Cong Med, 1913, Subsection 7, B Part 2, p 167
[33] Graham, G S Jour Med Research, 1916, xxxii 241
[34] Graham, Evarts Jour Exper Med, 1915, xxii 48

Lengeman[35] found that by using a special apparatus which permitted the administration of the minimum of diluted chloroform vapor necessary to keep dogs in anesthesia he did not usually succeed in producing the changes in the liver which had been found by others In how far is this experimental work applicable to practical obstetrics?

It occurred to me that full surgical anesthesia, more or less prolonged and often repeated on successive days, as done by the experimentalists who report these findings, does not represent the narcosis commonly used in obstetrics

I determined to give chloroform to animals in a manner imitating its administration in obstetrics and watch the results Dogs and guinea-pigs were anesthetized in the following manner

The animal was strapped to a board and given chloroform[36] from a mask for thirty seconds (the period representing a labor pain) This was repeated every four minutes for two hours, every three minutes for one hour, every two minutes for one hour and then the animal was continuously anesthetized for a half hour Some of the animals received the anesthetic for one hour less than that and the complete final anesthesia was omitted

The animals were killed at intervals of two, four and six days and the livers examined Contrary to my expectation, the same changes in the liver were found as described by Howland, Graham and others, as well as the same tendency to rapid regeneration

The study of these experiments, however, seemed to furnish the key to the mystery It explained how women may be given chloroform in labor and never show symptoms or come to necropsy while dogs and guinea-pigs certainly suffer pathologic changes, at least temporarily

Although planned theoretically to imitate the narcosis of childbirth, the anesthetization of these animals did not in fact resemble it at all The animals were strapped to boards, where they strained for a considerable period until finally they became drowsy from exhaustion or somnolent from the effect of the anesthetic One 15-pound dog was given at times 25 drops at a dose on a closely fitting mask to obtain some semblance of quietude There was no euphoria in these animals

A woman in labor has suffered pains and fears their return She believes chloroform will give relief She receives an adequate inhalation during a pain This is repeated with other pains She anticipates relief from chloroform. All the forces of suggestion are at work The wonderful relief from small doses is due in a small part to its analgesic effect, in much larger part to a sort of hypnotism

Case 1—Mrs M, tripara weight 155 pounds, was exceedingly nervous and hyperesthetic. There were slight pains beginning 3 a m, which became regular and hard at 5 a. m Cervix three fingers Suffering intensely Began chloroform at 5 07 7 drops on mask applied for thirty seconds Pains every two minutes Seven drops of chloroform with each pain Patient in perfect analgesia Pituitary extract ½ ampule given Eleven more pains up to 5 48 Pituitary extract ½ ampule given Five more pains up to 6 05 when patient was delivered Fifteen drops instead of 7 at each pain for each of last three expulsive pains Weight of child, 8 pounds 4 ounces Total chloroform 185 drops

Guinea-pig No 1 in my series weighing ½ pound received 112 drops of chloroform on a more closely fitting mask in its theoretical analgesia

Case 2—Mrs H, primipara, aged 32, weight 138 pounds Labor began 6 a m Examined 9 a m, external os 1 finger, cervix 2 cm long Head at brim, left occipito-anterior presentation, pains every four minutes, lasting fifteen seconds Weak contractions, no suffering Membranes ruptured spontaneously at 11 10 Pains irregular, short, intensely painful Practically no increase in dilatation Patient neurotic, became hysterical Chloroform with each pain beginning 11 50 Pituitary extract ½ ampule Contractions improved, patient in agreeable analgesia Pituitary extract ½ ampule repeated every twenty-five minutes Chloroform continued 5 to 10 drops at each pain Contractions lasted from thirty to forty seconds, but chloroform mask held to face only during height of pain, usually twenty seconds At 2 05 dilatation complete pains every two minutes Strong contractions, well sustained Pains more powerful intermission one minute At 2 45 head on perineum Full anesthesia Delivered at 2 57 Placenta 3 05 Total pituitary extract 4 ampules Total chloroform 500 drops

Dog No 2 in my experiment, weight 15¾ pounds, received 635 drops of chloroform Struggling and howling except during last forty minutes of three hour narcosis

I am convinced that there is no parallel in the giving of small doses of chloroform during labor pains to a woman and the experimental anesthesias of animals on which the condemnation of chloroform is based

The legitimacy of applying to the human subject the results produced in laboratory animals has often been contested There is a great variation in susceptibility to given poisons and toxins among different kinds of animals It may be assumed that human beings may differ from other animals in susceptibility to poisoning by this drug

Certainly the large doses of chloroform in proportion to the weight given to a fear-exhausted animal are not comparable with the whiffs of chloroform given to a healthy woman in a cheerful and receptive frame of mind

I have never seen any symptoms due to this narcosis, the so-called chloroform *a la reine*, and am inclined to take a position based on the evidence of the numerous competent clinical observers who have reported favorably on it from their actual experience

If we are reluctant to ignore the effects shown in animal experiments, we can accept the findings of the recent work of Evarts Graham[34] He has shown that alkalies administered along with chloroform inhibit its toxic effects on animals If we are giving a protracted anesthesia, we can give alkalies

The experiments of Marshall and Rowntree[37] and others showing decreased fibrinogen in the blood of animals from chloroform anesthesia are open to the same objection as the other experimental findings as having no proved application to human beings

There have been objections to the use of chloroform in the second stage of labor on the ground that it weakens contractions and delays progress For the same reasons it is practically forbidden during the first stage of labor by most textbook writers

There are many cases, however, in which chloroform greatly shortens labor by relieving suffering and encouraging voluntary expulsive efforts in the second stage Every accoucheur has seen patients who were making no progress, suddenly delivered with the administration of chloroform, while preparations were under way for forceps extraction

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[35] Lengeman Beitr z klin Chir 1900 xxvii 805

[36] These experiments were performed in the laboratory of Dr Seymour Oppenheimer and in the Pathological Laboratory of the College of Physicians and Surgeons of New York. The sections were prepared and studied by Dr Mark Gottlieb

[37] Marshall and Rowntree Jour Exper Med 191 xxii 3 3

A number of authorities, among them Galabin[38] and Eisenberg[14] approve of chloroform for certain cases in the first stage Newell[39] recommended anesthesia in the first stage for various indications but used ether

In 1855 Edward William Murphy[40] wrote of chloroform as follows

> There is one condition of the cervix uteri in which I have iven it with great advantage in the first stage of labor The of the womb is sometimes caught and greatly com-ssed between the head and pelvis The pain is excruciating and the action of the uterus is often deranged or suspended, the woman cannot endure her agony and her strong apprehensions interrupt the pains Let her have chloroform and she becomes tranquil, the action of the uterus returns regularly and the dilation is soon completed Under such circumstances I have given chloroform when the mouth of the womb was not opened more than a sixpence and was gratified to find the dilatation advance more rapidly

In my experience practically all objections to chloroform on the ground of delaying contractions have disappeared since I have been using pituitary extract

Bandler[41] reports that more pituitary extract is necessary when chloroform is used There need be no objection on that ground A small percentage of each agent may be neutralized by the other At all events using ½ ampule of pituitary extract every twenty-five minutes during the administration of chloroform in small doses at each pain I find that labor progresses rapidly

In fact the labor is so short that the total period during which chloroform need be given must relieve the anxiety of those who fear its use

Many patients, particularly multiparas, do not need an anesthetic at any time during labor Some require it only at the final expulsion But there must be no arbitrary rule as to when it should be begun The time to administer chloroform is not at two hours or at fifteen minutes before the expected end of labor It is when the patient begins to be unequal to the suffering Hold the morale of the patient Keep the pain within the limits of her fortitude Have her inspired with her efforts and assured of your assistance if the suffering is too great She will not be the worse for such consciousness of pain as she has borne easily and willingly She will not regret amnesia, but will remember with satisfaction her share in the victory A very little chloroform in the early periods of labor will be sufficient to control the patient and secure her tranquil cooperation It is a fortunate circumstance that the neurotic women, who are most likely to need early analgesia, are also most amenable to suggestion and on small doses are brought into the semihypnotic state[42]

It is not within the scope of this paper to make a comparison between chloroform and various other agents Ether, nitrous oxid alone, nitrous oxid and oxygen, and scopolamin and morphin all have adherents Some of these narcoses have just begun to arouse interest Others have attained a great popularity which is already subsiding

My purpose has been to seek reassurance for the many who find chloroform satisfactory I wish to emphasize the fact that chloroform in normal childbirth produces a distinct anesthesia in which its effects are strengthened and supplemented by the influence of suggestion

The use of pituitary extract with chloroform by greatly shortening the labor further restricts the dosage of the anesthetic and modifies the role played heretofore by chloroform in labor cases

The question of remote poisoning is not new, but has been before the profession for more than half a century Late developments in labor cases in which chloroform was used have necessarily been watched by many competent obstetricians, yet there is practically no incontestable evidence of late poisoning in normal women in labor

There is no parallel between animal experimentation on which the late toxic effect of chloroform is alleged and its use in normal obstetrics

ABSTRACT OF DISCUSSION

Dr C H Davis, Chicago In view of Graham's results in producing hemorrhagic disease in new-born animals together with the changes in the maternal liver, which Dr Hill has also found present, we must still use chloroform with a degree of reserve, and especially so, since these changes do not follow the similar use of nitrous oxid or ether Until seven years ago chloroform was used in our outpatient maternity service, but after a patient and three of us were severely poisoned from its decomposition, due to its being used in a close room in the presence of a gas jet, it was discarded in favor of ether Graham and Woodyatt have shown experimentally that chloroform may cause acute dilatation of the stomach Audebert collected ten puerperal cases from the French literature, and since chloroform had been used in eight, he considers it an exciting factor in causing this acute dilatation While I will concede that chloroform may still be used to advantage in some cases, I cannot believe that with our present knowledge we are ever justified in using it as a first stage procedure or over a long period of time With a long drawn out or painful first stage we may better use morphin or heroin, either alone or with chloral hydrate or scopolamin For the second stage of labor nitrous oxid and oxygen has proved more satisfactory than chloroform If nitrous oxid is not available certainly ether will answer the requirements without the danger element of chloroform Dr Hill's cases suggest that chloroform tends to increase the use of pituitary extract Early in our experiments with pituitary extract four babies died shortly after birth on whom necropsy revealed no cause of death Cases of babies dying from the excessive use of pituitary extract have been reported from German clinics It must be used with great care and in very small doses If chloroform has a tendency to increase the use of pituitary extract we have an even greater argument against its use than the animal experiments Ether, I would always prefer to chloroform, but when available, nitrous oxid and oxygen because of greater efficiency and safety is the analgesic of choice

Dr Joseph B De Lee, Chicago I did not discontinue the use of chloroform because of any animal experimentation I discontinued it, first, because of the frequency of postpartum hemorrhage after its use, and, second, because of the frequency of pneumonia after chloroform administered in close rooms with an open flame Many times I have been made sick by the chloroform, and the patient, exposed to the same fumes, certainly suffered as much as I did I have seen several cases of late chloroform poisoning, and death from acute yellow atrophy of the liver following the administration of chloroform We know that choloroform has an injurious effect on the liver For this and its other ill effects I would raise my voice very strongly against the use of chloroform in labor

Dr John Osborn Polak, Brooklyn I am opposed to the use of chloroform in labor My reasons are the same as those of Dr De Lee Not only did death occur from a condition similar to acute yellow atrophy, but in these two cases there was no previous evidence of any kidney lesion In these cases chloroform was administered by an intern in one case the quantity being 1 ounce and 1 dram, in the other, 2 ounces and 3 drams Both patients died on the fourth day Necropsy showed all the liver changes found in acute yellow atrophy Another point to be mentioned is that chloroform, like ether, like gas, like scopolamin, depends largely for its results on the one who administers it It is not chloroform that does so much harm in minimum dosage, but the anesthetizer and repeated anesthetization This is true also of the use of ether of scopolamin and of morphin The question at issue is the manner in which these drugs are to be used, and I am opposed decidedly to the dictum going out from this section that chloroform can be used with impunity in the first stage of labor, even after that first stage may be fairly well advanced I am opposed to any routine use of it because there are sufficient data as to the serious effect of the drug to make us at least cautious in its use With morphin and scopolamin to relieve the first stage and ether and oxygen for the second stage there is no reason why a woman may not have a painless labor without the risk of liver necrosis

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[38] Galabin and Blacker The Practice of Midwifery, New York, The Macmillan Company, 1910, p 315

[39] Newell Surg, Gynec and Obst, 1906, iii, 126

[40] Murphy, Walton and Maberly Chloroform in Childbirth, London, 1855

[41] Bandler Am Jour Obst, 1916 lxxiii 77

[42] Hallauer Deutsch med Wchnschr, 1910, xxxvi, 263

Dr. E Gustav Zinke, Cincinnati I have practiced midwifery nearly forty-two years Chloroform was the anesthetic in use then and it held undisputed sway for many years As a young man I gave anesthetics, chloroform and ether, hundreds of times for practitioners and surgeons of repute Later I have had it given in my own cases as many times and oftener For a period of fifteen years I had seen no ill effects from chloroform under any circumstances Then, suddenly, numerous deaths from chloroform occurred, not only in Cincinnati hospitals but the country over Whether death was really due to chloroform was as far as I know, never definitely determined. On one occasion I was present at a surgical operation when death took place. The difference between ether and chloroform depends much on how they are used There is good in both Dr De Lee has given a good reason why he does not want to continue chloroform, but today when we have electric lights, his objection does not obtain The first stage of labor, under ordinary circumstances, does not require chloroform for the relief of pain Much depends on the individual patient As a rule chloral hydrate or if necessary, a hypodermic of one-fourth grain of morphin, answers the purpose

Dr J H Carstens Detroit I gave chloroform for many years I think I averaged 100 cases a year It is unique that I did not have any trouble with chloroform I never had a woman die during labor nor do I remember a single case of yellow atrophy of the liver in these women, but I have seen a number of cases in consultation I think it depends as Dr Polak says, on how chloroform is given The men who do not advocate the use of chloroform are men in the hospitals who have the facilities the assistants, by which any anesthetic can be given properly I hold that more of your patients will die from postoperative pneumonia who have been given ether, than will die from yellow atrophy of the liver following the use of chloroform in labor That once in a while a patient will die after chloroform, I will admit, but they also die after having been given ether I have known them to die after 'twilight sleep'! I have seen them die on the table after having been given gas and oxygen But not any cases in labor If you are out in the country, five miles from nowhere, with nobody in the house but the husband, and he faints and you have to take him by the collar and put him out in the snow and then come back into the house and give that woman an anesthetic all alone and put on forceps—I would like to see anybody do it and give ether I uphold everything that is said about ether when you have all the facilities the anesthetist, and the assistants in the hospitals but leave chloroform to the general practitioner who has to do the whole work. Do not rob him of that boon He is very careful and nobody will die from its use in labor

Dr. W P Manton Detroit Chloroform has been the ideal anesthetic in labor since 1847 I have used it in thousands of cases and up to the present time have not seen a single instance of either early or late chloroform poisoning and many of these patients I have followed for twenty-five years and longer I think we are too much inclined to yield our clinical experience to the experience and dicta of the pathologist and laboratory man I quite agree with Dr Hill that the proper administration of chloroform is quite valuable during the first stage of labor I do not see what Dr Zinke's experience with a death in a surgical case following the use of chloroform has to do with the use of chloroform in labor We may all have been unfortunate enough to have lost surgical cases under chloroform but few of us have lost confinement cases from the same anesthetic I do not believe, either, that, if properly administered chloroform tends to produce postpartum hemorrhage With the uterus properly controlled after delivery of the child and placenta, I have yet to see postpartum hemorrhage except in those cases where there is laceration of the cervical artery and that can be remedied by a stitch In my own practice I prefer in the first stage of labor to give the patient a hypodermic of one ampule of pantopon In an hour, if there is no effect, she gets another dose and with that perhaps a little chloroform In 75 per cent if not more, of all cases, the pantopon and chloroform combination will give the patient just as good a "twilight sleep" as morphin and scopolamin and without danger I have used this method for a number of years without evil effect on either mother or child I have seen two or three children slightly asphyxiated but no child has died from asphyxiation, which may have been due to pressure in a protracted labor Now, if chloroform is such a disastrous anesthetic in childbirth, why do we, as clinicians, have so little trouble?

Dr E Gustav Zinke, Cincinnati I have been misunderstood by Dr Manton and lest others misunderstand me, I wish to say that I did not abandon the use of chloroform after having used it for fifteen years, but some of my friends did I told them that I would not abandon a friend who had served me thousands of times faithfully, simply because that friend disappointed me once

Dr H O Marcy, Boston One factor in this question which has not been referred to is the effect of chloroform in overdoses on the heart I have been told by my medical friends in Boston that if a legal case should occur claiming damage in which chloroform has been the anesthetic its having been used with extreme care would not absolve the one employing it. In my own practice I have never seen a single case of injury from the use of chloroform With proper use I think chloroform is usually safe It is given as a routine anesthetic with me It is a much more powerful drug than ether and requires careful administration

Dr C W Simpson Waxahachie, Tex I am in country practice and often deliver women without any assistance I have to use chloroform All other anesthetics are out of the question when one man does the operating and gives the anesthetic at the same time. I would ask those gentlemen who are writing books on obstetrics to please, for our country practitioners' sake, put in their books a saving clause for us in using chloroform so that when we do have an accident, and little damage suit lawyers get after us we have some way of getting justice

Dr Chester R. Ogden, Clarksburg W Va What are we who go out from this meeting into the smaller towns and country places to do with reference to chloroform in obstetrics? Are we going to be frightened because we have heard of supposed deaths from chloroform poisoning in labor and discard it? What if there have been deaths from chloroform? Do we not have deaths from other forms of anesthesia? The good obtained from the use of chloroform by physicians practicing in the country far outweighs the possible ill effects from its use. Besides the comparison of its use on a dog which resists, and on a woman in labor is not to be considered I have seen no serious results that could be attributed to the use of chloroform in obstetrics. When the country physician or those in larger places for that matter give chloroform they give it cautiously in the presence of a genuine necessity and with the patient in full composure

It seems to me that to discard chloroform in obstetrics would be working a great hardship on the physician who is attending his woman in confinement away from trained help when he meets with a difficult labor, besides taking from the suffering woman a means of tiding her over a very stormy experience Too many of our hospital interns and so-called professional anesthetists who give ether almost exclusively, are not fit to give chloroform for the reason that they become interested in the operation and forget they are giving chloroform and pour it on as they would ether I notice that when I am called into the country to perform an operation and pend, as I am sometimes compelled to do, on the family physician to administer ether, he has difficulty in keeping my patient asleep for the reason that his careful habits of giving chloroform slowly in labor, which usually constitute about all of his anesthesia experience, does not fit him for giving ether as an anesthetic

Let us drop the argument against the use of chloroform in *obstetrics by agreeing that its use is permissible* so long as we use it with care and good judgment

Dr Gordon Grote Copeland, Toronto, Ont To me the important element in the discussion is the judicious use of chloroform in favorable cases only I unfortunately had the experience, in working under Dr Cragin in the Sloane Hospital in New York, of having a patient die of delayed chloroform poisoning following the careful administration of chloroform several times for a very short period I saw the liver and kidneys at necropsy and there is no doubt in my mind but that the chloroform caused the damage I am in accord with Dr DeLee that, if given in too large amount, chloroform is the cause of postpartum hemorrhage It should not be given in a case of eclampsia at all Cragin and Hull and others have shown conclusively that it produces in the liver, kidneys and other solid organs similar changes to those seen in eclampsia and acute yellow atrophy of the liver We ought, therefore, to discriminate carefully in the use of chloroform Personally I am in favor of, and use, nitrous oxid and oxygen whenever possible, but these are not yet generally available for the country practitioner or in the average poor case The practical thing to do in chloroform administration is to make a careful test of the urine If albumin or sugar are present chloroform should not be used

Dr J L Hill, New York Dr Marcy called attention to the danger of sudden heart failure Almost since Simpson's time a controversy has existed as to whether respiration or heart gave way first in chloroform deaths The experimental work of Cathcart, Clarke, and others brings to light the state of ventricular fibrillation in these cases of shock during incomplete anesthesia But these deaths from shock occur in incomplete anesthesia in surgery This incomplete surgical anesthesia in which the patient only partly narcotized is subjected to severe shock differs from the analgesia with chloroform in labor Awaiting a surgical operation the patient is terrified and when only partly anesthetized is particularly susceptible to shock In obstetric analgesia the patient's mind is at ease and suggestion plays an important part, so there is a lessened necessity for the anesthetic

Dr De Lee referred to the dangers of chloroform, but reported no cases occurring in labor It has occurred to me that such observations are too generally taken from surgical experience and applied to obstetric usage of chloroform just as they are taken from animal experimentation and applied to the human Reference was made by Dr Copeland of Toronto to a case at Sloane Hospital in which necropsy showed liver changes Death had followed a few slight anesthetizations Animal experimentation has shown that repeated anesthetizations particularly predispose to this condition But although they occurred in an obstetric hospital these were complete surgical anesthesias for minor procedures There is a difference between repeated surgical anesthesias and the obstetric administration of a few drops of chloroform during labor just at the moment of the pain in a woman in health for no operations but simply for the analgesic effect I do not wish to convey the idea that pituitary extract is always necessary when chloroform is used I brought up the matter of its use with chloroform particularly because some of the advocates of pituitary extract have not favored the use of the two drugs together while I have found them to combine most favorably I do not recommend the very general use of chloroform in the first stage of labor, but believe there are certain indications for it I feel, moreover, that the obstetric administration of chloroform during labor tends to produce that quiet analgesic semihypnotic state which we are so anxious to obtain, and that it is better than ether for this purpose

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THE INFLUENCE OF DIET ON THE DEVELOPMENT AND HEALTH OF THE TEETH*

JAY I DURAND, M D
SEATTLE, WASH

The steadily increasing tendency of the teeth of all civilized races to decay is one of the remarkable facts of human pathology

An examination of 10,500 schoolchildren of England and Scotland showed caries in 86 per cent [1], of 19,725 in northern Germany, 95 per cent [2] Schoolchildren to the number of 3,236, from 7 to 14 years of age, examined by Dr McCullough[3] of Philadelphia, showed decay or loss of 5,575 first molars and 2,188 of the other permanent teeth

There is no doubt that our grandfathers had better teeth than we have, but the great extent of this steadily increasing process is best appreciated by investigations of our more distant ancestors

Mummery[4] in an examination of ancient British and Anglo Saxon skulls found decay in only 15 per cent of Anglo Saxon skulls, 2 9 per cent of British skulls of the Stone Age, 21 8 per cent of British skulls from the Bronze age, and 32 per cent of British skulls from the Romano-British Age Among uncivilized races 1 4 per cent of Esquimaux showed decay, 3 per cent of Maoris, 3 9 per cent of Indians of northwestern American coast, 9 5 per cent of North American Indians, 5 2 per cent of Fiji islanders

Pickerill[5] found decay in only 0,76 per cent of 260 Maori skulls from an uncivilized age, yet Maori children brought under civilized conditions in two schools which he examined showed 15 6 per cent of the teeth to be carious

The importance of good teeth in the general health of the individual will hardly be questioned by any one in this section Any new observation bearing on the subject should be of interest

Three years ago the Department of Public Health of Seattle examined the teeth of 2,000 children from 2 to 7 years of age The work was carried out by Dr Mabel Seagrave in a commendably thorough and painstaking manner Those who had been fed six months of the first year on any one form of nourishment were tabulated with results as follows

Food	No Examined	*No* Showing Caries	*Percentage* of Caries
Breast milk	859	366	42 6
Cows' milk mixtures	232	102	42 9
Sweetened condensed *milk*	61	41	72 1

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* Read before the Section on Diseases of Children at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

[1] Rose and British Dental Assn, Reports quoted by Smale and Colyer in Diseases and Inquiries of the Teeth, p 242

[2] Schlesswig Holstein Dental Association, quoted by Pickerill (Footnote 5)

[3] McCullough Arch Pediat, 1913, xxx, 43

[4] Mummery Transactions of the Odontological Society, Vol 11, New Series

[5] Pickerill The Prevention of Dental Caries and Oral Sepsis, Bailliere, Tindall & Cox, London, England 1912, p 11

During the past year I have enlarged these statistics by an examination of children at the Better Babies Contests, held in Seattle and Bremerton, Washington, and children seen in private and dispensary practice My results seem to confirm the earlier statistics

From better babies contests the following results were obtained

Food	No Examined	No Showing Caries	Percentage of Caries
Breast milk	418	118	28 2
Cows milk mixtures	102	30	29 4
Sweetened condensed milk	32	17	53 1

Of 104 cases collected from private and dispensary practice in which the children had been fed five months or longer on sweetened condensed milk, seventy-seven, or 74 per cent, showed caries of the teeth

The significance of these statistics is that a poorly balanced diet, high in carbohydrate and low in fat, protein and mineral constituents, fed during the period in which the teeth were developing and calcifying in the jaws, seems to have rendered them doubly susceptible to decay after they erupted

Confirmatory evidence is added by the fact that the first molar, in which the articulating surface calcifies during the first year of life, shows vastly more imperfections, faults, fissures and absence of enamel and is three times as frequently decayed as the third molar, which does not begin to calcify until the ninth year of life

These facts emphasize the importance of a well-balanced diet during infancy Such a diet I should consider breast milk a properly modified cows milk, when this is unobtainable, with the early addition of vegetables, fruits and meat Alfred Hess says that orange juice may be begun any time after the first month Vegetables, fruits and meats, properly prepared, and given in small but increasing amounts, may safely be begun as early as the sixth or seventh month

Such additions to the diet are valuable aids in preventing or curing rickets and spasmophylia, both of which adversely affect the development and subsequent soundness of the teeth, they make for firmer, more elastic tissues, and a more vigorous, agile and resistant child

The second point of importance is giving early a diet which will teach the proper function of the jaws and teeth A child raised on pap will not learn to chew its food But if given strips of tough meat to chew the juice out of, such foods as bacon rinds, bones, tough crusts, hard breads, and, later, apples, celery, lettuce, etc, the muscles of mastication and in turn the jaws are enlarged and strengthened More room for developing teeth is given and they are hardened, cleaned and polished after they erupt

The third point I wish to emphasize is the prevention of decay, which may be effected through selection of food and its proper sequence during a meal The last article eaten should be one which will cleanse the teeth and leave no sticky, carbohydrate, decay-producing residue A tooth brush will not remove sticky pastries, cake and other carbohydrate remains from the fissures of the teeth, but meat, a green salad celery, radish, onions, apple, orange and fibrous food generally, under the 100 to 250 pounds pressure of the healthy bite will grind such food out and the residue left, if any, will have a deturgent action toward caries Pickerill in his exhaustive work has shown that the amount ptyalin content and alkalinity of the saliva secreted in response to various flavors acidity and hardness of foods varies greatly Acid fruits produce much highly alkaline saliva, a high ptyalin content and are an ideal food with which to finish a meal

Sim Wallace,[6] applying these principles and directing the diet from an early age in fourteen children, found at the ages of from 5 to 7 years "not one tooth showing the slightest trace of caries"

Dean Owre of the dental department of the University of Minnesota is applying this test in a few children whose diet he is directing and feels that his observation has gone far enough to convince him of the possibility of keeping teeth free from decay He lays emphasis on the importance of giving hard food to force vigorous mastication and of sufficient "roughage" in the diet to wear down the irregularities of the articulating surfaces and prevent stagnation in the bowel

Our Chairman, Dr McCleave, has recognized the importance of this subject by choosing it for his Presidential address It is my hope that this paper may assist him in arousing pediatricians who are directing the great child welfare movements to give more consideration to this phase of the work

A PLEA FOR THE PREVENTION OF DEFORMITIES IN THE HEALING OF BURNS *

CHARLES A PARKER, M D

CHICAGO

We are all familiar with the deformities following the healing of burns and the difficulties attending their subsequent correction The relief of the bat-wing deformity following burns of the axillary region and the often severe flexion deformities of the joints of the extremities is no pleasant task for the surgeon and the improvement obtained is frequently but a painful compromise The deformities following burns of the anterior and lateral region of the neck are also quite unpromising

The burns on the extensor surfaces as a rule cause very little interference with function, as the movements of the unsupported joint are usually best controlled in a position of partial flexion This keeps the extensor surface long during the healing and flexor efficiency prevents further contraction after healing

Deep burns may affect the integrity of the structures so severely that recover of function is impossible and even amputation may be necessary These will be treated according to the indications, the same as equally extensive traumas from other sources, but the burns I especially wish to consider are the usual ones of the so-called third degree, destroying the skin completely in some areas and leaving the deeper structures practically intact and ready to resume their function when the wound is healed

It is with reference to this class of burns, the usual type, that I recently made the statement that "however extensive they may be, as long as they are compatible with life, healing may and should be obtained without deformity and with good function"

This refers particularly to burns of the limbs and their connections with the body and does not include burns of the face, although it may well apply to burns of the neck

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[6] Wallace Sim The Prevention of Dental Caries Dental Record London 1912 p 51

* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association, Detroit June 1916

If this position can be maintained the surgeon is thus relieved of another serious problem and the patient of much suffering from his permanent physical handicap

The procedure is simple and aims at the prevention of the deformity by fixing the limb in the most desirable position during the process of healing and for some time thereafter to prevent subsequent contractures I have been able to do this best with removable plaster casts applied in the early stage of healing before contractures occur, over the proper dressing of the burn

The elbow, wrist and fingers should be kept extended The hip and knee should be extended with the foot at right angles to the axis of the limb, and the toes extended For burns of the axillary region the arm should be maintained in an abducted position In burns of the front and sides of the neck the chin must be kept high The cast can be removed daily, the wounds dressed and the cast immediately replaced during the whole process of healing

The fixation also directly enhances the healing by preventing injury of new tissue by movements of the limbs It relieves the flexor muscles of their constant attempts at immobilization to prevent pain and takes away the cause of the pain

The method as applied combines two features that are mutually helpful One relates to the dressing of the burn itself, and the other to the application of the cast The burn, then, is an ulcer and may be treated by skin grafting or such other methods as the surgeon has found successful, provided the limb can be maintained throughout the period of treatment in the desired position

My method in this stage has been the application of ribbons of adhesive plaster directly on the wound and extending some distance beyond the margins for attachment to the normal skin The ribbons are usually placed at the margin of the burned area first and then laid on in parallel strips slightly overlapping each other until the whole region is covered

It is usually best to wait until all sloughs have separated before beginning this part of the treatment, as there is no danger of contractures occurring during this early stage The adhesive plaster is changed two or three times a week or whenever it becomes loosened from the healthy skin Its removal causes no pain as it does not adhere to the moist surface of the wound, and its application by gentle pressure is equally painless By its pressure it also prevents exuberant granulations and probably reduces the amount of secretion by its influence on osmosis Owing to its permeability it furnishes an ideal condition for healing, conserving heat and moisture the same as an unbroken scab, though it is quite impossible to maintain the latter complete over large areas The absence of mesh also prevents the penetration of the granulations with the subsequent bleeding and pain on their removal The inclusion of the secretion, that is, the pus, has no more deleterious effect than the same condition existing under a complete scab and is rather to be desired for its moisture than deprecated, as growth can occur only in the presence of moisture, even under the scab It is much more efficient than the scab over large areas It is really a wet dressing with the moisture consisting of the patient's own serum plus the ever present bacteria

Over the adhesive plaster is placed a dressing of dry gauze sufficient to absorb the secretions that make their way out from under the plaster strips at various places This is usually changed daily, and as it does not come in contact with the wound, its removal is also painless Over this is made the circular plaster cast which is afterward opened at convenient places for daily removal for changes of dressing For the limbs it is usually made bivalve For the other regions it is cut as ingenuity suggests for its removal and reapplication

After healing is obtained, night casts closely fitting the parts are made and these are worn for several months, usually at night only, as long as there is a tendency to deformity Persistent use of the after-treatment is essential to permanent success

With the proper use of this method the deformities of limbs following this type of burns need no longer occur, and, indeed, their presence must be a reproach to the surgeon responsible for their development

ABSTRACT OF DISCUSSION

Dr J P Lord, Omaha The first function of the orthopedic surgeon is to prevent deformity Dr Parker's paper is therefore opportune Though not strictly new, we are indebted to him for emphasizing this particular method of preventing deformity His use of plaster of Paris seems desirable The mere mention of splints in surgical textbooks is not sufficient to bring the matter to the attention of any class of doctors The time of healing should be conserved by timely early skin-grafting We should hasten healing even by the early excision of eschars and deep sloughs when indicated Tissues that have been so deeply burned as to be destroyed should be removed early, to lessen the period of sepsis and hasten the period at which skin-grafting may be resorted to Such tissue should be excised, and its place covered with a skin-graft or a skin-flap Otherwise contractures will be invited There is going to be a tendency to contraction if a number of weeks or months are consumed in the healing of the wounds, because a large amount of connective tissue is formed, and this has the inherent quality of contraction, weeks or months after healing has taken place The present tendency in general surgery is to get these wounds covered by skin at the earliest possible date, and it has been my experience that it is best when possible to use whole flaps of skin and subcutaneous fat in the more extreme cases It is my observation that long periods of healing in these cases are quite unnecessary The securing of straight members at first is not sufficient to prevent the deformity that is bound to take place subsequently Early grafting or plastic repair should be applied to flexures of the limbs to secure a more flexible and pliable condition, and one more free from the dangers of subsequent contraction, than it would be after a number of months of healing by granulation under any method Another reason for the early covering of these suppurating areas with skin-grafts is to prevent the occurrence of intercurrent diseases, to which they are an easy prey in the patient's weakened condition from prolonged suppuration I would, therefore, sound a warning against a too thorough application of the methods of Dr Parker and favor lessening the period of healing by application of the resources of surgery

Dr Charles M Jacobs, Chicago I should like to bring out, as a point of interest, that this method of applying adhesive strips may be used not only in cases of burns, but also on pressure sores as a result of plaster casts At the Home for Crippled Children, balsam of Peru dressings for pressure sores have been discarded for zinc adhesive strips The strips can be changed through windows cut out of the plaster casts

Dr Edwin W Ryerson, Chicago I have seen some of Dr Parker's work, and consider it better than anything I have seen in the past Even if skin-grafts be applied, as suggested by Dr Lord, none the less should we use apparatus of this kind, because skin-grafts often tend to contract, and one may be disappointed in the result after skin-grafting unless such precautions are taken The method advised by Tubby to relieve this contraction should receive more attention than it apparently has in this country I have had occasion to use it in a few cases The results are excellent, and one obtains a pliable scar that does not tend to recontract

Dr Charles A Parker, Chicago I have taken up only one phase of the subject The treatment of the burn is the treatment of the ulcer, and you can treat it as such If you know how to treat ulcers well, you can take care of burns You do not need a lot of literature, but plenty of adhesive plaster and some grains of common sense I am much more proud of the two boys that had the straight legs and never had any contractures than I am of the ones that I had to straighten afterward The skin-grafting is all right, but I have been taking care of a boy whose burns after four years of skin-grafting, never were healed Auto-skin-grafting is all right as far as it goes but when you have a little girl with so much burn that there is not enough skin left on the patient to take grafts from, what are you going to do? The patients do badly in extensive burns with skin grafts I get that information from the general surgeon because I get his cases to treat afterward It is proper to use skin-grafting when it can be done, but when you come to heal up a wound like that in this boy and get it cured in fourteen months with a straight leg, it is something worth while

Removal of the eschar is advised by German surgeons Unfortunately, people who read German think that everything that comes from Germany is good That, I think, is one of the objections to being able to read German In the case of a child burned like that not one of you would do it He has a hard struggle to live at all There may be cases in which it is advisable but not in very large burns As to overcoming these contracted scars, it does require several months any way depending on what the tendency to contracture is I have seen the scars quit their tendency to contract after some months, but some go on for much longer Nevertheless scars do give up this tendency They sometimes give up when you wish they would hold We know now that scars of the esophagus give up I have seen scars from drinking lye do this So it is in the scar from the effects of a burn You get scars, of course, but you get the most rapid healing and the smallest amount of subcutaneous scar tissue possible with no destruction of skin that you have made one day by see-sawing and stretching it out the next Hold the fingers out straight while they are healing, and there will be no necessity for skin grafts

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Age and Accomplishment

But why, you ask me, should this tale be told
To men grown old, or growing old?
It is too late! Ah, nothing is too late
Till the tired heart shall cease to palpitate
Cato learned Greek at 80, Sophocles
Wrote his grand Oedipus, and Simonides
Bore off the prize of verse from his compeers
When each had numbered more than fourscore years
And Theophrastus, at fourscore and ten,
Had but begun his Characters of Men
Chaucer at Woodstock with the nightingales
At 60 wrote the Canterbury Tales'
Goethe at Weimar, toiling to the last,
Completed Faust' when 80 years were past
These are indeed exceptions, but they show
How far the gulf stream of our youth may flow
Into the arctic regions of our lives,
Where little else than life survives"

—Longfellow

SHEET RUBBER SUPERIOR TO GAUZE SPONGES IN ABDOMINAL OPERATIONS *

JOHN W KEEFE, MD, LLD
Fellow of the American College of Surgeons
PROVIDENCE, R I

It has been said that as long as surgery remains an art sponges will be overlooked and unintentionally left in the abdominal cavity Yet I believe the day is coming when we will not place a sponge, clamp or any other instrument wholly within the abdomen

The ablest surgeons the world has known have had the misfortune to have left a sponge, a drainage tube or an instrument in some cavity of the body

The possibility of leaving a sponge in the abdominal cavity has been a source of anxiety to every surgeon, and although we have devised numerous methods to avoid this accident, the human element is always present, and must be reckoned with, and alas, too often this unfortunate accident takes place

The man who has to bear the stress of the unexpected calamities that occur in surgery realizes how easy it is to leave a foreign body in the abdominal cavity, while the layman, who so little appreciates the situation, invariably states that it is criminal negligence to leave gauze, a drainage tube or a part of the surgeon's armamentarium in the patient's anatomy

Neugebauer, Schachner,[1] Kretschmer, Crossen and others have collected from the literature about 300 cases of foreign bodies left unintentionally in the cavities or tissues of the body

The number of times that this accident has happened will never be known Death may have taken place as the result of an overlooked sponge, and the cause may never have been suspected Many cases never come to necropsy, while several necropsies revealed a sponge in the abdominal cavity, although the sponge had not been missed by the operator Surgeons hesitate to report these cases, fearing the loss of reputation, and the modern tendency to suits for damages

Among the causes of this accident may be enumerated faulty anesthesia, absence of good light, unfavorable position of the patient, operating in the home and without the regular assistant, deep-seated operations, the occurrence of profuse bleeding, and unusual complications arising during the course of an operation Many instances occurred in operations for extra-uterine pregnancy Sponges have been found following operation on the thyroid, breast and thigh, and even operations for hernia and suprapubic operations on the bladder

Sponges and clamps have wandered into the bowels and have been passed by rectum It seems incredible, yet it has happened, that a yard of gauze has been left in the abdominal cavity and later removed from the rectum A foreign body has been known to have remained in the abdominal cavity for years and caused no inconvenience A sponge was passed after a lapse of twelve years, and a forceps after four years

Dr Edouard Martin[2] of Berlin makes comment on a decision of the superior court of Germany, July, 1913 Foreign bodies, namely, a gauze compress, a broken piece of sponge and a clamp were left during an operation The court held that the surgeon was not responsible if he had used the safeguards which are usually employed, claiming that the accident was due to the human element, which must of necessity enter all cases

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* Read before the Section on Obstetrics Gynecology and Abdominal Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Schachner Ann Surg 1901 xxxiv 499 679

[2] Martin Edouard Deutsch med Wchnchr, Jan 21 1915 p 108 ibid Jan 28 1915 p 137

In a later decision by the court, concerning an appendix operation with local anesthesia, in which were adhesions and free pus, a compress was left in the wound The patient was a witness in his own behalf The surgeon was found guilty of negligence

The court held that if some unusual accident occurred during the operation, such as hemorrhage, the leaving of a sponge might be excused

The patient was ten weeks at the hospital, five weeks in bed In the operation a pus appendix was removed in two pieces, and the wound was drained A gauze sponge was accidentally left in the wound Narcosis was given five weeks after operation, and the wound was examined, the gauze was not found Three months later a gauze strip was removed, and the wound then healed

At the first trial of the case the court decided in favor of the doctor, who was sued for 12,000 marks The court held that if, in spite of all precautions, injury occurs to the patient; it is an oversight, on the part of the surgeon, but not a culpable one

On appeal to the highest court of the country, the patient was awarded a verdict of 40,000 marks The testimony showed that the most conscientious and eminent surgeons have had these accidents The patient testified that he had full consciousness and that he saw all that happened, and that the operation went along smoothly without any unusual occurrence

The diary of the operating room stated that there were adhesions, pus, and an appendix was removed in two parts, but said nothing about complications This emphasizes the value of taking careful notes at the time of the operation

The court decided that to leave a foreign body was not allowable by an expert The supreme court held that if you cannot show that something unusual happened during an operation you are liable The court also stated that a way must be found to prevent gauze slipping into the wound

The defendant claimed that the patient was responsible, because he saw the sponge put in, and as he saw everything that took place, he should have asked that the sponge be removed It is of interest to note that a man under local anesthesia may be a witness

CASES OF OBJECTS LEFT IN WOUND AFTER SURGICAL OPERATION

No	Where and by Whom Reported	Operator	Character of Operation	Article Lost	When and How Removed	Result
241	Kretschmer Ann Surg, 1909, xl, 814	?	Herniotomy	Gauze	Two and a half years later removed by forceps from scrotum	Recovery
242	Kretschmer Ann Surg, 1909, xl, 814	?	Goiter	Gauze sponge	Six weeks later found in curetting fistulous tract	Recovery
243	Kretschmer Ann Surg, 1909, xl, 814	?	Goiter	Gauze	One and a half years later pulled from fistulous tract	Recovery
244	Kretschmer Ann Surg, 1909, xl, 814	?	Suprapubic cystotomy	Gauze strip	Six weeks later removed from fistula on dressing wound	Recovery
245	Kretschmer Ann Surg, 1909, xl, 814	?	Suprapubic cystotomy	Gauze sponge	Several years later, suprapubic cystotomy	Recovery
246	Kretschmer Ann Surg, 1909, xl, 814	?	Osteomyelitis of femur	Metal probe	Sometime later, detail not given	?
247	Kretschmer The Journal A M A, Oct 9, 1909, p 1229	Willis	For ovaritis	Surgical sponge	Thirty days later, discovered through part of original opening in abdomen	?
248	Kretschmer The Journal A M A, Dec 11, 1909 p 2203	Smith	Laparotomy	Sponge	Ten months later, details not given	?
249	Kretschmer The Journal A M A, March 12, 1910 p 906	Ruth	Appendicitis	Gauze pad	Ninety eight days, later laparotomy	Recovery
250	Robb Cleveland Med Jour, 1910, ix, 434	Robb	Abdominal section	Gauze sponge	Nine months later, abdominal section	Recovery
251	Maylard Lancet, London, Feb 28, 1914, p 608	Maylard	Gallstone	Gauze	Two weeks, laparotomy	Recovery
252	Hinterstoisser Wien klin Wchnschr, April 18, 1912, p 589	Hinterstoisser	Extra uterine pregnancy	Gauze compress	Four months later, laparotomy was performed for tumor mass	?
253	Hinterstoisser Wien klin Wchnschr, April 18, 1912, p 589	Hinterstoisser	Total extirpation of uterus	Sponge	Fifty one days later, sponge was pulled out with forceps through vagina	?
254	Hinterstoisser The Journal A M A, Feb 17, 1912, p 511	Johnson	?	Gauze	Details not given except that gauze was left in abdomen at operation	?
255	Furniss The Journal A M A, March 22, 1913, p 879	?	Dubrssen operation	Two sponges	Five months later one removed from bladder eight months later, other removed from vagina	Recovery
256	Furniss The Journal A M A, Dec 6, 1913, p 2094	Humiston	?	Gauze sponge	Six months later, details not given except that sponge was left in abdomen	?
257	Stoeckel Ztschr f gynak Urol, January, 1913, p 88	?	Prolapsed uterus	Gauze compress	Cystitis developed, colpocystotomy necessary to remove supposed calculus, which proved to be gauze compress	Recovery
258	Stoeckel The Journal A M A, Jan 10, 1914 p 154	Kerr	Tuberculous peritonitis	Sponge	Nine months later, laparotomy	Recovery
259	Gerich Zentralbl f Gynak, March 28, 1914, p 474	Gerich	Monocystic ovarian cyst	Gauze compress	Eight months later when fistula which had developed, was operated on	Recovery
260	Gerich Zentralbl f Gynak, March 28, 1914, p 474	Doleris	Cesarean section	Sponge	Details not given	Recovery
261	Gerich Zentralbl f Gynak, March 28, 1914, p 474	Dallinger	Sarcoma	Artery clamp	Two and three quarter years later operation after they had been noticed in abscess found in abdominal scar	Death
262	Kuntzsch Zentralbl f Gynak, Jan 31, 1914, p 199	?	Placental polyps	Gauze	About ten months later at a normal birth, gauze was pushed out with head of fetus	Recovery
263	Kuntzsch The Journal A M A, Sept 4, 1915, p 900	Berry	Removal of ovaries	Sponges	Details not given	Death
264	Kuntzsch The Journal A M A, Dec 11, 1915, p 2113	Holbrook	Appendicitis	Sponge	Nearly a year, details not given	?
265	Kuntzsch The Journal A M A, May 6, 1916, p 1489	Brand	Removal of ovaries	Gauze pad	Pad missed by nurse after incision was closed later reopened and pad removed	Death

against the surgeon How much must be done and what to satisfy what is called necessary care?

Some surgeons have had patients sign papers waiving their rights to sue and thus protect the surgeon against damage suits? The legal value of the above is, however, doubtful It was argued that it could not be gross carelessness, but an oversight, which is excusable

The imperfections of all human acts was dwelt on as well as unexplainable happenings After the act it is easy to criticize, as the excitement of the moment has ceased We should consider all the difficulties and impediments with which the surgeon has to deal

Each case should be decided by itself We should not demand infallibility The best and most advanced surgeons have made mistakes There is as yet no method commonly adopted Incidents may happen during an operation, so that the attention may be diverted and a sponge in the cavity be forgotten

I report in the accompanying table the cases taken from the literature adding these to Crossen's collection

Case 1—The first case to come under my personal observation of sponges being left in the abdominal cavity was that of a man operated on for gallstones by one of the leading surgeons of New York I happened to be present at the operation as a spectator Sea sponges were used, and these sponges were torn into small pieces and held by sponge holders There was no attempt made to keep count of them, and there must have been at least two hundred pieces scattered on the floor of the operating room at the close of the operation

The patient rallied from the operation, and in about five weeks left the hospital for his home in a distant city He continued to have rise in temperature and two weeks after arriving home he was again operated on by another surgeon There were no sea sponges used at this second operation, but ten days later an abscess broke into the wound and four pieces of sponge used at the primary operation were removed The patient died within two months

Case 2—The second patient was operated on at the Rhode Island Hospital by a colleague of mine The patient was a man of about 30 years of age who had received a stab wound of the abdomen just to the left of the navel There was some bleeding from vessels of the mesentery which was checked with ligatures and the wound was closed without drainage

Two years later this man was admitted to my service at the Rhode Island Hospital He had a movable mass about the size of a hen s egg which could be felt through the thin abdominal wall On opening the abdomen we found this mass involved the omentum The tumor was removed, and the severed vessels in the mesentery were ligated

After the operation the specimen removed was examined, and it consisted of a gauze sponge rolled into a small ball, completely covered with omentum, the omentum had wrapped itself entirely about the sponge There were no adhesions to the abdominal wall or to the intestine

Case 3—This was the case of a woman operated on for the removal of a small ovarian cyst A nurse, whose sole duty it was to count and take care of the sponges used in the operation and who was an exceptionally intelligent and conscientious woman was assigned to this case Just before the abdominal wound was to be closed, the sponge count was asked for and found to be correct, but while closing the abdominal wound the anesthetist allowed the patient to come partly out of the anesthesia and as the intestine appeared in the wound a sponge was asked for and placed over the intestine, just beneath the wound

The wound was then closed and neither the operator, his assistant nor several physicians who were looking on at the operation, nor the nurse who had charge of the sponges again thought of the sponge placed in the abdominal cavity

The fact that the count had been asked for, and was satisfactory, seemed to relieve the minds of all interested in the operation Twenty-six hours after the operation the patient had some rise in pulse and temperature The probable cause of her condition was considered by the operator, assistant and the nurse who had charge of the sponges, each one, separately, recollected the placing of the sponge and leaving it in the abdominal cavity

The patient was again anesthetized, the wound opened and the sponge, found just beneath the abdominal wall, was removed The patient then made an uninterrupted recovery

Since witnessing this accident I never have relied on any one to take charge of the sponges I am no longer annoyed with the counting of sponges and with the discussions by nurses and doctors as to whether a sponge was lost in the abdominal cavity or thrown away

The methods now in use to avoid the accident of leaving a sponge or instrument in the tissues are as follows counting the sponges before and after the operation, by one, two, or even three individuals, attaching tapes to the gauze pads and a clamp bead or metal disk to the tape, using large pads or strips of gauze, and as few as possible, tying together gauze drains, when several are used, the use of four or five long gauze strips, kept in bags, which are attached to the laparotomy sheet near the wound

The only sure way to prevent sponges being left in the abdominal cavity during an operation is not to place the sponge wholly within the abdominal cavity

Numerous are the suits that have been brought, and in some cases verdicts for heavy damages have been rendered the complainant In not a few instances a reputation built up by years of hard work is practically ruined by the mishap of leaving a sponge in the tissues

Learned authorities both at home and abroad have argued pro and con as to whether the surgeon or nurse was to blame, and in some cases whether the patient was at fault, from the mere fact that he had to undergo an operation, and of necessity must assume this risk with others that attend an operation

We owe a debt of gratitude to Yandell Henderson[3] for his remarkable experimental studies with reference to the carbon dioxid content of the blood and its relation to shock

His experiments and deductions are of great practical value to us as surgeons He states that from excessive pulmonary ventilation, reflexly induced by laying open the abdomen, or indeed, by any surgical operation, there results a diminution of the carbon dioxid content of the arterial blood This is known as acapnia

When the viscera are exposed to the air, exhalation of carbon dioxid occurs, and the local acapnia which results is a factor in the peripheral inhibition

General acapnia from the hyperpnea and local acapnia from exposure are the initial causes of surgical shock following laparotomy

Cloths moistened in warm saline solution and frequently changed produce local acapnia When acapnia is prevented the forms of motility of the gastro-intestinal canal are practically identical with those shown by roentgenograms of unoperated animals

He caused to pass over the exposed viscera a gentle current of normal, moist air, and found that this treatment is a highly effective procedure for the production of shock

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[3] Henderson Yandell Am Jour Physiol 1909 xxiv 66

In another experiment one loop of intestine was laid in cotton wool and left untouched by the hand, during twenty minutes of warm moist aeration, while a control loop was wrapped in sheet rubber to protect it from the air, and was handled continuously for this period Both became congested, but the former underwent by far the greater loss of tonus and motility The carbon dioxid content of the animal's blood was then increased, and the exposed loop recovered its tonus and motility

He thus demonstrates the value of sheet rubber as a covering for the intestine during operation, as it reduces acapnia and lessens shock

Crile says that "when the omentum is made to cover the viscera there is much less shock" When the abdomen is opened peristalsis ceases

Henderson found that aeration of the viscera of a bulldog for three hours lowered the arterial pressure 50 per cent The small intestine changed color from pink to dark purple, then 200 c c of Ringer s solution were slowly injected into the femoral vein

This fluid while cold had been shaken thoroughly in a flask, through which carbon dioxid was bubbled, and then had been warmed to 35 C

Ringer's solution saturated with carbon dioxid was introduced into the peritoneal cavity and a stream of carbon dioxid gas was bubbled through this liquid from a tube inserted deep among the viscera

At the end of twenty minutes the animal had come out of coma, arterial pressure had risen considerably and the pulse was of nearly normal amplitude Later the viscera recovered their normal appearance and tonus

Local acapnia due to direct exhalation of carbon dioxid is a factor in the loss of tonus in exposed viscera Exposing the viscera to a current of air at body temperature saturated with moisture rapidly induces congestion and loss of tonus and motility

Restoration of the body's store of carbon dioxid is effective, as a method of relief from all except the extreme stages of acapnia shock

If the conclusions of Henderson are correct, we should no longer cover the exposed intestine with warm moist towels or gauze Sheet rubber is far preferable Should it be found necessary temporarily to remove loops of intestine from the abdomen, a rubber bag may be fastened to the sterile sheet near the wound, and the intestine placed in this bag

If we can by any means lessen the risk or avoid altogether the possibility of leaving a foreign body in the abdominal cavity we should strive to do so

During the last ten years we have been using a roll of sheet rubber, which has proved in every way satisfactory This rubber roll is about the thickness that is used for rubber bandages It is about 8 inches wide and 18 feet long When the abdominal cavity is opened, folds of this rubber are tucked in the wound, walling off the intestine from the site of the operative field A part of the rubber roll lies outside the abdominal cavity, as the entire roll is never placed wholly within the abdomen

The edges of the wound may be covered by part of the rubber roll, thus protecting them from infection and trauma from use of retractors

It is of equal service whether we are operating in the pelvis, on the uterus tubes or ovaries, or whether we are excising a gallbladder or doing a gastroenterostomy

The work of Henderson and other observers[4] has shown us that rubber is less irritating to the intestine than gauze I believe the use of the rubber roll to protect the intestine undoubtedly lessens the shock attending the operation, and I am quite sure that we have fewer adhesions following an operation

The ease of sterilization of the rubber roll is important We can as readily sterilize this roll as we can our rubber gloves, and the same roll can be used many times I have known them to last for more than a year After an operation the rubber is washed and while unrolled it is boiled for twenty minutes It is then dried, powdered, and rolled into a bandage Previous to operating it is again unrolled and then sterilized by boiling for twenty minutes It is then rolled and placed in a hot saline solution

A towel is folded so as to make a pocket, into which the roll of rubber is placed and the pocket is then clamped to the sterile operating sheet near the wound During the operation as much or as little of this rubber roll can be unwound, walling off the intestine and thus protect the operative field

Gauze sponges 18 inches long and 3 inches wide made of several thicknesses of gauze are used to wipe dry the field of operation These sponges, however, are never placed in the abdominal cavity, but gauze amputation rolls, 6 feet by 4 inches are used

It will be noted that few sponges are needed in any operation when the rubber roll is used, and that it is no longer necessary for us to place sponges in the abdominal cavity The use of the rubber roll prevents the loss of the carbon dioxid content of the blood, and thereby lessens shock It is moist and smooth and does not injure the peritoneum, thus preventing postoperative adhesions

We are all creatures of habit, and it has so long been the custom to use gauze sponges to wall off our operative field that we are reluctant to dispense with them I firmly believe, however, that one who has never used this rubber roll cannot appreciate the satisfaction I feel in being relieved of the annoyance of counting sponges, and the possibility of leaving a foreign body in the abdominal cavity

ABSTRACT OF DISCUSSION

Dr Richard R Smith, Grand Rapids, Mich It is my belief that Dr Keefe has given us a valuable hint in the technic of abdominal operations in suggesting the use of a rubber dam instead of gauze pads for walling off He speaks at some length of the danger of leaving sponges in the abdominal cavity, and the advantage that the dam presents in doing away with this danger Unfortunately, we have not solved the problem of leaving foreign bodies in the abdominal cavity when we do away with sponges, for instruments and needles have been left there in spite of every precaution It seems to me that the methods employed to prevent this accident are less at fault than the organization of our operating rooms In a carefully organized operating room this accident seldom occurs, for operations proceed in an orderly way and there is less confusion An operating room to be well organized must have a well organized hospital behind it, so it seems to me that surgeons must go back of mere methods of dealing with technical problems, and must interest themselves in the hospital itself in order to prevent this and other accidents in the operating room Comparing the merits of gauze pads and sponges with those of the rubber dam, it would seem that the former had some advantages One is that the gauze adheres to the tissues with which it comes in contact, and can hold back the intestines from the field of operation better than the smooth rubber dam can possibly do Aside from protecting the intestines from the air and the manipulation of the operator, the gauze absorbs blood and other fluids which may be septic and is a distinct advantage in this way Its greatest disadvantage is that it traumatizes the intestines and peritoneum, adds to shock and postoperative ileus, and I believe has much to do with postoperative distention Undoubtedly the so-called gas pains following operation are partially due to the reestablishment of peristalsis in intestines that have been traumatized by the gauze The rubber dam has the distinct advantage of not doing this, but of leaving the intestines smooth, moist and glistening when removed It seems to me that this advantage may offset the disadvantage that the rubber dam has in not holding back the parts so well, nor of absorbing fluid so readily I have not personally used it sufficiently to speak further of it, but in the few cases in which I have employed it it has been satisfactory, and I am planning to give it a good trial

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[4] Peters Jour South Carolina Med Assn 1915, xi, 16, Lancet London, Nov 15, 1913 Black Railway Surg Jour, 1915, xxi, 178

Dr C H Magee, Burlington, Ia I wish to relate two unique cases in which foreign bodies were left in the abdominal cavity I was dresser in the North London Hospital some years ago, and an eminent English surgeon at that time operated on a case of extra-uterine pregnancy During the night the ligature slipped and the patient died We were called to attend the necropsy the next morning A few stitches were cut and a black object came into view It was a sea sponge of the kind used at that time This shows that such things may happen to any of us Another case happened in a hospital in Chicago The operator was a prominent surgeon of that city He told us there was a cyst in the epigastrium and he would cut down and see if he could remove it Cutting down he found a cavity, and after exploring it he put in a yard of iodoform gauze We went into another room and soon a nurse came to the door and beckoned violently to him to come back We went back into the hall and when we got to the patient's room I saw a sight I shall never forget The man was vomiting, and from his mouth protruded a strip of gauze half a yard long A big safety pin fastened the gauze to a band about his belly, or he would have vomited the strip

Dr S C Stremmel Macomb, Ill In sixteen years I have left two sponges in the abdomen I have taken out four in that time One of the sponges that I left in protruded from the rectum and was taken out by the patient herself It was a case of fibromyoma with severe bleeding and in packing in the sponges to prevent bleeding the surgical nurse failed to make her count right That was ten years ago Since then we have never left a sponge in, because I have my sponges made large with a tape half a yard long and another sponge at the end and that sponge never goes in I was much impressed with this idea of the rubber, but I do not think rubber answers as well as gauze The same thing can be accomplished with a big roll of gauze The method we have used in the last ten years has served us well

Dr Stephen E Tracy Philadelphia Some weeks ago we operated on a patient with a mass in the left upper quadrant of the abdomen which had been diagnosed carcinoma of the descending colon A rather extensive operation was performed and a large section of the colon removed After operation the bowel portion of the specimen was split open and we were surprised to find a large abscess cavity which communicated with the bowel and through the opening a piece of gauze projected The patient had had an abdominal operation, supposedly for an inflammatory pelvic lesion, seventeen years before The gauze had caused no symptoms until about six months before its removal I agree with Dr Smith that if a hospital is well organized and the operating room staff well trained, it will be seldom that a piece of gauze will be left in the abdomen

Dr F F Lawrence, Columbus, Ohio This matter of sponges causes more worries for the surgeon and more tears on the part of the patient and friends than any other one subject The morbidity of abdominal surgery is in direct proportion to the number of sponges or yards of gauze or other things the surgeon unnecessarily puts into the abdomen Postoperative adhesions are in direct relation to the packing in of gauze I witnessed an operation a few days ago, a perfectly aseptic case, a little bit of an ovarian cyst, without an adhesion or other evidence of infection, and the surgeon put in four or five yards of gauze He unnecessarily invited or courted adhesions I often say to students that there are two things to be put into the abdomen—a clean hand, and a clean and active conscience, and to avoid putting in anything else Retractors and sponges produce local irritation, bruising of tissues and consequently postoperative adhesions Even in pus cases, if you will maintain intra-abdominal pressure by having an assistant press on the side of the abdomen, any pus present will be forced out and you will not need to put in sponges You will save your patient nine times out of ten, where you would lose her seven out of ten if you pack with gauze We should not create pathology by unnecessary traumatism

Dr John J Reycraft, Petoskey, Mich How to get around the accident of having sponges left in the abdomen is an important question and has been given great study by me Too many men take much time in operating and much of the time is consumed by placing in wall-off sponges Sometimes I have seen men taking an hour in doing an operation which should be done in twenty minutes because of that very thing If sponges must be put in do not put in small ones, large ones are better and a large aseptic towel is better than gauze and walls off the field of operation well If there is much pus in the wound you need packing The omentum will adhere to gauze very readily In a case of ascites in which I had placed in the abdomen a pad of gauze to drain the fluid off I was much surprised to find after three days that its removal was most difficult An extraordinary find in my experience was in a case following ectopic operation The woman did not do well A mass formed in the abdomen The woman could not have a bowel movement without great difficulty and I deemed it advisable to do a second operation and found a large crushed gauze sponge in the lumen of the bowel There was no possibility whatever that this could have entered only by way of the mouth or the anus A nurse claimed that the patient had difficulty in swallowing after the operation, and as it could not well get into the ileum against peristalsis it becomes evident that the patient swallowed the sponge

Dr John W Keefe, Providence, R I Regarding the well organized operating room as a preventive to leaving sponges in the abdomen, I may say that in one of the cases cited in the paper, we had at that time an operating room in which the same people had been working together day after day, and with a bright, conscientious nurse and yet that sponge was left in There have been instances in which sponges or pads with the tapes attached for safety have been found within the abdomen, so that, no matter how perfect your operative technic may be, a sponge may be overlooked It is possible that the tape may be cut during the operation and the sponge allowed to remain in the wound The great relief felt by one who uses the rubber roll is a large factor in abdominal operations

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Tongue Signs of Typhus—Some weeks ago The Journal mentioned the tongue sign of typhus to which P Remlinger called attention In his extensive experience with typhoid, paratyphoid and typhus in northern Africa, he noticed that when a patient with typhoid or paratyphoid was asked to put out his tongue he did so without effort But when the patient had typhus, his tongue did not seem to be under his control Try as he might, he was unable to get the tongue past the teeth, and sometimes the tongue seemed to be attracted back, toward the pharynx There was occasionally at the same time a slight tendency to trismus, from contraction of the masseters In three years' experience at points where typhus was far from infrequent, he never knew this tongue sign to fail in cases which proved to be typhus In his communication on the subject in the *Paris medical*, 1916 vi, 42, he cites three articles on typhus by army surgeons who mention that the tongue seems shorter than usual," or that "the patient is unable to show his tongue , it cleaves to the palate," or the tongue trembles and cannot be extended beyond the teeth'

LOCALIZED OSTEOSPONDYLITIS *

WILLIS C CAMPBELL, M D
MEMPHIS, TENN

During the past three years I have seen four cases with varying symptoms, showing certain local changes in the vertebra, which appear to be analogous to monarticular ostearthritis, for which reason I have used the term "osteospondylitis" The condition is probably known to others as a limited spondylitis deformans of the hypertrophic type, but I can find no accurate description in literature

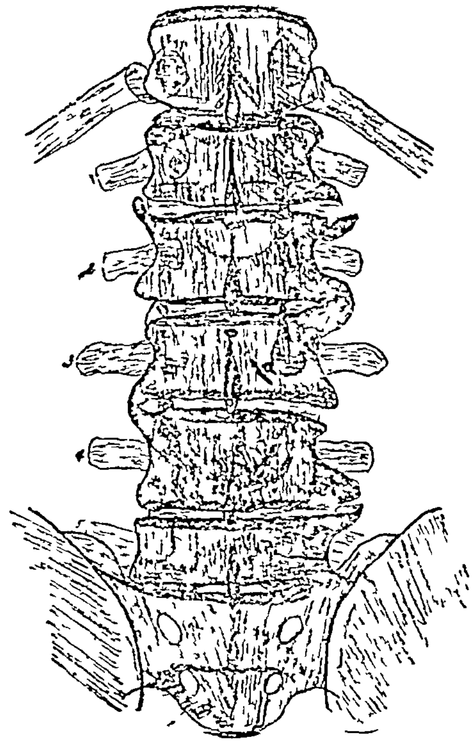

Fig 1 —Spondylitis deformans, showing spars and crescents about the intervertebral disks with marked flattening and atrophic changes in all parts of the spinal column

The process is decidedly local and seems to be an affection of one intervertebral disk The roentgenogram shows crescent shaped lamellae of bone, which are thrown from the body of one vertebra to its adjacent fellow, and may completely encapsulate the disk, producing solid external fixation of two vertebrae, or only a part of the circumference may be involved In some the bony bridge may be incomplete and connected by only one extremity to the vertebral body, and at times there may be no apparent union of either extremity to the bodies, which is probably explained by assuming that the process was fibrous in the early stage with later ossification The bony lamellae may connect the bodies at their margins, the so-called "lipping," or may extend from the center of the exterior surfaces The bodies or other portions of the vertebra show no abnormalities in shape, size or structure In one acute case there was atrophy of the disk with bony substitution

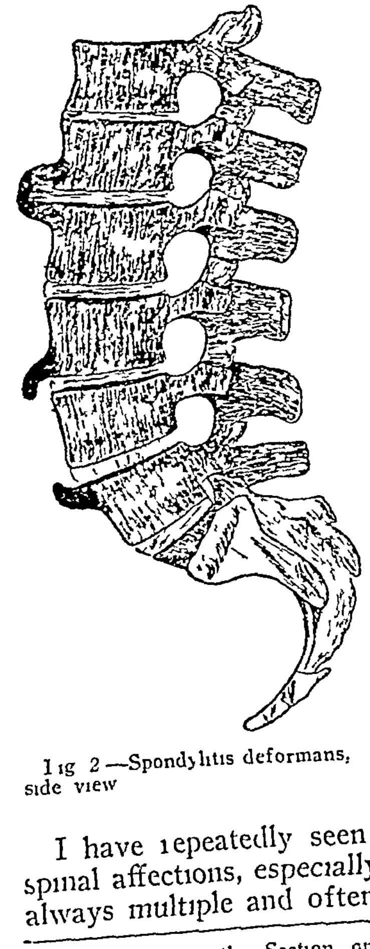

Fig 2 —Spondylitis deformans, side view

I have repeatedly seen similar anomalies in other spinal affections, especially spondylitis deformans, but always multiple and often involving the entire spine, and associated with definite bony changes in other portions of the vertebra itself (bodies, articular processes, ligaments, etc) Garrod reports spondylitis deformans in one articulation, but before the days of universal use of the Roentgen ray Goldthwait states that only a small area may be affected, but more frequently one region and often the entire spine

In all four of my cases the affection was in the lumbar region

REPORT OF CASES

Case 1 —L, man aged 40, was first seen at the Baptist Memorial Hospital, Feb 22, 1913 In December, 1912, he had lobar pneumonia from which he recovered, to be followed in a few weeks with pain in both lower extremities and gradual flexion of hips until walking was impossible On examination the spine was rigid from extreme muscular spasm, both hips flexed 90 degrees, evidently double psoas contraction Diurnal temperature, 99 to 101 Blood and urine negative Roentgenoscopy revealed bodies of fourth and fifth lumbar vertebrae united by bridge of bone extending from the center of the exterior surface of the body of the fourth to the same point on the fifth, surrounding the intervertebral disk, which was atrophic and partially ossified Clinically this case was identical with tuberculosis of the lumbar region, the diagnosis of "local osteospondylitis" being made by the Roentgen ray The causative agent we presume was probably pneumococci, and a sequela to lobar pneumonia Bradford frame with extension and hyperextension followed by plaster jackets gave perfect relief with no recurrence to present time Repeated roentgenograms show no extension of process

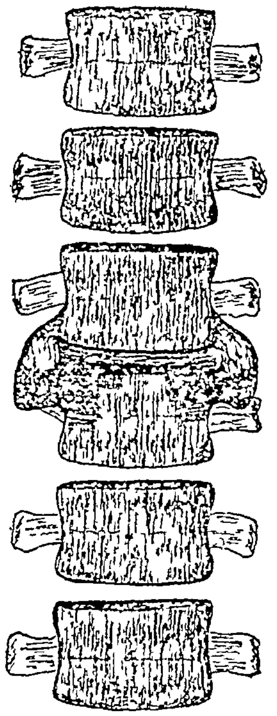

Fig 3 (Case 1)—Extension of superior border about intervertebral disks shows partial ossification being surrounded by bone extending from the center of the exterior surface of adjacent vertebrae

Case 2 —R L, man, aged 22, had gonorrhea, December, 1910 In May, 1911, he had severe pain in right lower quadrant of abdomen, also pain in back which radiated down right thigh and knee Does not know whether fever existed The appendix was removed with slight if any relief, and after two years, May, 1913, was operated on for "adhesions" with recurrence of symptoms, when a kidney exploration was considered Patient very nervous and at times hysterical Examination revealed tender area in the region of appendix The movements of the spine were limited in side bending to the left, free to the right and slightly limited in flexion Temperature, blood and urine were normal Roentgenoscopy revealed bridge of bone on the right lateral aspect of lumbar spine between third and fourth vertebrae Diagnosis, localized osteospondylitis Extension of head and both lower extremities on Bradford frame followed by fixation to spine gave decided relief with no recurrence to the present time

Case 3 —A, man, aged 27, single, fell from horse at age of 12, and wrenched back at 22, but no serious inconvenience followed either injury For past three years has suffered pain in lumbar spine and in both lower extremities Examination, June 1, 1915 revealed very slight limitation of motion in all directions Roentgenogram shows bony bridge between second and third lumbar vertebrae, right lateral aspect Evidently "localized osteospondylitis" Extension, hyperextension with later fixation gave relief

Case 4 —Mrs D, aged 40, in July, 1914, had suffered for one year with very acute attacks of pain in kidney region with referred pain to vulva and thigh No abnormality could be found in urine following attacks Roentgenoscopy was advised

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

by general surgeon, who suspected renal calculi, after which, patient was seen in consultation, July 11, 1914 The roentgenogram showed crescent of bone between second and third lumbar vertebrae surrounding disk No other region of the spine was affected Diagnosis, localized osteospondylitis No treatment was instituted, and I have not heard from patient since

COMMENT

Evidently Case 1 was an acute pneumococcic infection of the cartilaginous disk between the fourth and fifth lumbar vertebrae, and could not clinically be differentiated from tuberculosis of this region Pneumococcic infection of large joints is a rather common sequela of pneumonia, but no mention could be found when the spine was affected The other three were of insidious onset and do not show so complete an osseous bridge, and are probably analogous to monarticular ostearthritis occuring in other joints In operating on the hip for this condition one will frequently find a complete bony hood extending from the margins of the acetabulum to the neck of the femur materially restricting motion, though the joint proper may remain intact

Two useless major operations were done in Case 2 and a third proposed, on account of the referred pains After three years of definite symptoms, permanent and lasting relief was attained by simple and persistent orthopedic measures In Case 4, kidney stone was suspected and operation seriously considered until adverse opinion was given after seeing the Roentgen-ray plate

As spinal movements are not usually materially impaired (except in acute types), a diagnosis of abdominal lesions is frequently made from the referred pains, and the patient submitted to useless major operations, but this is also true in other spinal affections, especially tuberculosis of the vertebra with psoas abscess and contraction on the right side simulating appendicitis, which should give the spine more serious consideration in differential diagnosis of affections in the abdomen

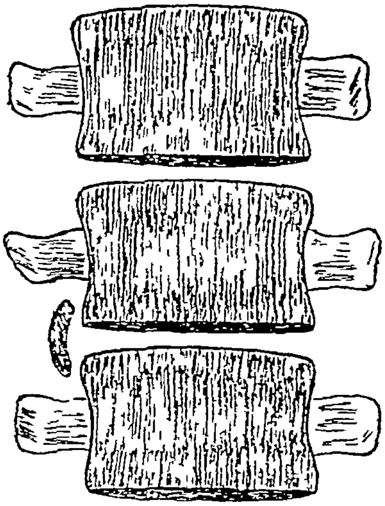

Fig 4 —A crescent may be seen, as in Case 2 which indicates fibrous bands joining adjacent vertebrae with incomplete ossification

The etiology is probably the same as in monarticular ostearthritis In no case was there a definite history of trauma in close relation to the affection, besides, I was unable to find similar changes in the roentgenograms of undoubted traumatic spines

Three cases were relieved by simple orthopedic procedures, as no focal infections could be found

Differential diagnosis of spinal lesions by the Roentgen ray is very meagerly considered in literature, in fact, few textbooks mention local manifestations except traumatic and tuberculous, for which reason the subject was considered worthy of presentation at this time

Exchange Building

ABSTRACT OF DISCUSSION

Dr F J Gaenslen, Milwaukee It is well for all of us to be reminded constantly of these referred pains As was shown in one of the histories, the patient had been subjected to a number of operative procedures, and others were contemplated In considering the cases cited the idea naturally suggests itself, as it did to the essayist, that the condition in question is an early localized lesion of the generalized process, which we recognize under the name of hypertrophic arthritis of the spine It is perfectly conceivable that calcium deposits may occur much earlier in certain areas than in others, and in such instances the condition would appear to be a local one rather than generalized at least for the time being Whether the new term osteospondylitis, or any new name, should be given to this condition, because it is merely a localized process, is a debatable point Dr Murray of Liverpool some years ago called my attention to the fact that these hypertrophic deposits of the spine are rarely found on the left side of the bodies of the vertebra, while they may be very prominent on the right He suggested at that time, that the pulsating aorta probably prevented the deposit on the left Since that time, I have always examined museum specimens with that point in view and have confirmed his observation The diagnosis between a localized process of this kind and tuberculosis may be difficult at times I recall one of my own cases, in which there was a very definite spike in one of the upper lumbar vertebrae with a loss of substance in the vertebra immediately below Because of the unequal limitation of motion and the marked bony deposit early in the disease, I decided in favor of a local condition, such as that described Future development proved the diagnosis to be correct

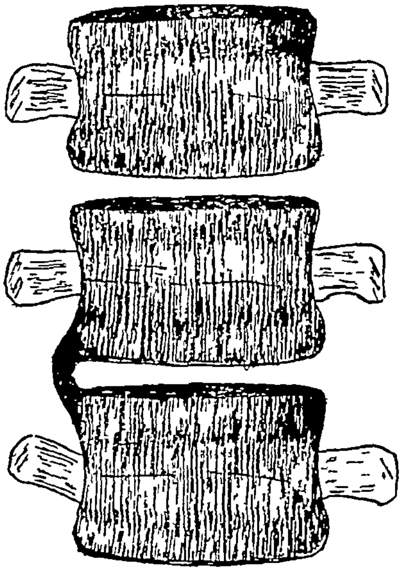

Fig 5 —Roentgenogram of Case 3 indicates bony lapping of adjacent borders about intervertebral disk, no change in disk or other portions of spine

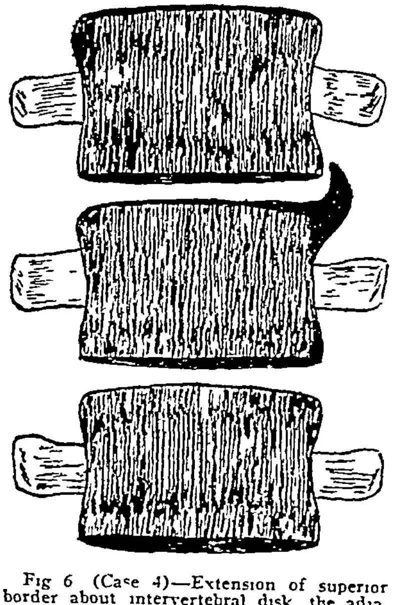

Fig 6 (Case 4)—Extension of superior border about intervertebral disk the adjacent vertebra above showing no change

Dr Albert H Freiberg, Cincinnati The cases which have been shown by Dr Campbell are very interesting, but I think that they are far from being rare We see cases of that kind every now and then, but Dr Campbell, I think, has shown us cases of infectious osteo-arthritis of the spine I object very seriously to a multiplication of names "Localized osteospondylitis' is unscientific, as the disease is not always localized in these cases and because such a term produces confusion We do not need a new term for this disease I have seen this condition half a dozen times or more, and on both sides at once, and I think that it is a part of the condition which we call infectious osteoperiostitis or osteo-arthritis, as the case may be In one of my cases, there was some difficulty in diagnosis, because, soon after the onset of the disease, abscess formation was apparent I do not remember what the etiology of the case was, but we were fairly clear about it Unless we are dealing with a mixed infection which is unusual in these conditions, they very soon clear up in the roentgenogram by the appearance of new bone, which we do not see as an early manifestation in tuberculosis When we see new bone early in the course of disease, we should be cautious about making a diagnosis of tuberculosis, for it is not a part of the pathologic anatomy of that disease except late as a part of the process of repair

Dr **Roland Meisenbach**, Buffalo In the main, I agree with Dr Freiberg I do not believe that Dr Campbell wishes us to understand that the spurs which he has shown represent a local process, but rather a localized entity of a general metabolic diathesis I believe that in some cases the osseous spurs are seen in a very early stage, even an earlier stage than Dr Campbell has shown I especially refer to patients complaining of backache, with only slight muscular spasms, or very slight restriction of spinal motions, due rather to muscular spasms than to the actual bony formation I believe that these muscle spasms are produced by very small spicules such as Dr Campbell has shown, but in an earlier stage These I have seen in a number of cases to be embedded in the intervertebral disks, and later on they grow in size and also appear in other joints than the vertebrae I think, however, that it is very important to make early diagnoses of these cases, if possible I have followed some of these cases and have had an opportunity to make a careful study, including the metabolic study, by which it was possible to diet the patient according to the metabolic chart rather than at random It is also interesting to note how these charts would change One of the earliest objective symptoms which is noted is a slight rigidity in the spine The early diagnosis can sometimes be made by noting clouded intervertebral disks on the roentgenogram and in rare instances, actual small spicules can be seen These are often the patients who complain of vague rheumatic conditions My plea is for early diagnosis

Dr **W Russell MacAusland**, Boston This nomenclature is very confusing It seems to me that the roentgenogram Dr Campbell showed and the clinical picture correspond to a monarticular infectious process We see these spicules or spurs thrown out in different stages in other monarticular infections—notably in the elbow joint, around the acetabulum, and on the bottom of the os calcis It seems to me that this condition can be classified under a much simpler terminology, that is, infectious arthritis of the spine with spur formation in the lateral ligaments

Dr **J T Rugh**, Philadelphia I want to mention two cases of the older type with pain that I have treated I anticipated Nature's efforts at ankylosis of the spine, and placed bone grafts after the method of Albee, with excellent results

Dr **W C Campbell**, Memphis I had no idea of originating a new term "Osteospondylitis" would be the natural term to apply to the same condition in the spine that in a joint we call osteo-arthritis I used the term "local" as the process in all of my cases was confined to one intervertebral disk in the same manner that monarticular osteo-arthritis of a joint is confined to one joint Such a process, of course, may originate at a distant focus If "osteospondylitis" is confusing to anyone, I am perfectly willing to apply "osteo-arthritis" or any other term, for it was only my desire to call attention to certain local processes with referred pains which had been diagnosed as acute abdominal lesions Two of the cases were observed over a long period of years, and show no extension to other portions of the spine All responded to simple orthopedic measures I do not believe that the aorta has any influence on the distribution of the process, as suggested by Dr Gaenslen, for the condition is frequently bilateral or on either side I stated that I did not regard the condition as uncommon, though one can find scant reference to such local changes in the spine, but there is ample discussion of analogous affections in joints—i e, monarticular osteo-arthritis

THE VALUE OF THE WASSERMANN TEST IN PREGNANCY*

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AND
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In consideration of this subject it was thought advisable to discuss it under three main headings (1) its value from a sociologic point of view, (2) its value from a medical point of view, and (3) theoretical serologic considerations

VALUE OF WASSERMANN TEST FROM A SOCIOLOGIC POINT OF VIEW

Under the first caption we primarily consider the case of the mother who may or may not have a dependent family She may be, but usually is not, aware of the fact that she has the disease This state of affairs is dependent on several causes In the first place, many more women than men contract the disease innocently, and therefore are much more apt to ascribe its manifestations to other causes

Second, the initial lesion is usually within the vagina and causes relatively little discomfort Gaucher[1] has shown that in 33 per cent of pregnant and 37 per cent of nonpregnant women with primary syphilis the initial lesion cannot be demonstrated Frequently the secondary manifestations are slight or are of such a character that they are ascribed to other causes There are a certain number of patients who give no manifestations of the disease even though carefully observed and closely questioned These patients, therefore, demand more than a casual examination to detect the presence of the disease They have the inherent right of any patient to a careful, thorough examination, which is all the more important because they are the actual or potential mothers of families Moreover, the danger to which these women are exposed because of the inherent tendency to miscarriage and premature labor in this disease is not to be thought of lightly Because of the general debilitated condition consequent on the syphilitic infection, these patients are much more susceptible to puerperal sepsis and much less able to withstand its ravages Even if puerperal sepsis does not occur, considerable harm may result from the psychic shock attendant on one or several miscarriages or the birth of diseased or marasmic children

The rights of the fetus must next be considered Proper treatment during gestation will usually permit the mother to carry the fetus to full term Trinchese[2] has shown that pregnancy is rarely terminated before the fourth month by syphilis Of the cases of miscarriage from the fourth to the seventh months with dead children, from 35 to 40 per cent are from syphilitic women Of the cases of premature birth at the eighth month, a large percentage are from syphilitic women, and this group comprises about two thirds of all the syphilitic children He believes, therefore, that the infection usually occurs after the fourth month and more commonly in the latter months of pregnancy, and hence early and intensive treatment in a given case gives the baby a good chance Repeated miscarriages, therefore, or the birth of undeveloped children from this cause are unnecessary and cast a decided reflection on the skill of the attendant physician

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* From the Departments of Experimental Medicine and of Obstetrics, University of Illinois, College of Medicine

* Read before the Section on Obstetrics Gynecology and Abdominal Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit, June, 1916

[1] Gaucher Quoted by Carle, Ann de dermat et de syph, 1913, iv, 451

[2] Trinchese Beitr z Geburtsh u Gynäk, Berlin, 1913, xviii, 119

According to reliable authorities there is a high percentage of cases in which mental deficiency varying from absolute idiocy to the moron state is attributable, at least in part, to the deleterious effects of congenital syphilis Gordon[3] found 50 per cent of this group reacting positively

Also the prevention of various deformities, such as the saddle nose, saber shin, syphilitic keratitis, deafness and deformities of the teeth and bones, is coming to be regarded as necessary to the complete fulfilment of our obligations to the patients

Again, there is the indirect loss of life seen in the cases of marasmic babies that do not develop normally and die of malnutrition or some mild infection which they would be able to withstand if they were not syphilitic Engle and Reimer[4] in this connection have shown that of children who show syphilitic lesions within the first month nearly all die If the lesions appear in the second month two thirds die Of those who first show lesions in the third month one half die Only 29 per cent of syphilitic children survive one year

The protection of society in general from these possible sources of infection is an important consideration, and under this heading must be considered the danger from promiscuous osculation, the infection of a second husband, the transmission to other children in various ways from a congenital syphilitic baby or child, or its potential danger to a wetnurse or to foster parents Besides these considerations the less probable though undeniably possible transmission of the disease through the medium of clothing, towels, drinking cups, and other fomites must be taken into account

When individuals suffer mental impairment due to acquired or congenital syphilis, they become, depending on the amount of impairment, complete or partial charges of the state It requires but a glance through the great charitable institutions with their cases of general paresis, tabes dorsalis, cerebrospinal syphilis, syphilitic keratitis, congenitally syphilitic idiots, imbeciles and morons to convince one of the great practical importance to society of the early recognition and active treatment of the disease

Another great class of state charges which is a constant source of expense and menace to society is the criminal class The percentage of syphilis is very high among these people but it is very hard to estimate in which cases the degeneracy is due to the infection and in which the infection follows as a result of the degeneracy In this connection the statistics of the New York Health department quoted by Pollitzer[5] are of interest He states that 35 per cent of 3,809 cases from the criminal, degenerate and derelict class have syphilis These were divided as shown in Table 1

Of late years much has been said of the overproduction of inferior material by the lower and mentally inferior strata of society, and many meetings are being held throughout the country to consider the question of birth control By preventing the birth of feebleminded syphilitic children this movement would be aided in no inconsiderable degree Again, every social unit has an actual value to the state if it is capable of self-support Therefore, the prevention of the death of the fetus by abortion or from other causes predisposed to by syphilis and the protection of the mother from puerperal sepsis or the various manifestations of the disease is an economic measure of great importance

Another group of individuals must come in for consideration as regards protection from infection by a syphilitic pregnant woman, namely, the obstetrician and nurses It is a significant fact that the forefinger of physicians is the second most common site for extragenital chancre Dr Hyde has said that rarely a week went by that he did not have a case of this kind in his office The use of rubber gloves has reduced the number of these infections, but certainly not eliminated the possible danger of contamination A positive Wassermann in any given case would serve to protect the medical attendants completely by insuring proper prophylactic measures The protection of physicians and hospitals from malpractice suits by proving that the cause of an abortion or syphilitic infection antedated the time of entrance into the hospital or the attendance of the physician is of considerable medicolegal importance

TABLE 1—SYPHILIS IN THE DERELICT CLASS

	Number of Tests	Positive	Per Cent Positive
Tombs Prison (men awaiting trial)	391	45	11 5
Hart s Island Reformatory (boys)	544	37	6 8
Penitentiary Blackwell s Island (both sexes)	253	62	24 5
Workhouse (both sexes)	2 621	1 209	45 7

VALUE OF WASSERMANN TEST FROM THE MEDICAL POINT OF VIEW

In order intelligently to consider the value of the Wassermann test in pregnant women let us briefly consider its value in the various forms of syphilis uncomplicated by pregnancy The test is now of such great value in medicine that it has become a routine measure in many hospitals, dispensary clinics and asylums The percentage of positive reactions in the different stages of syphilis varies somewhat in the hands of different investigators, but on the whole the results agree fairly well In primary syphilis the test is positive in about 80 per cent of the cases after the seventh week Previous to that time a negative reaction does not exclude syphilis

It is in secondary syphilis, especially in the untreated, that we obtain the largest number of positive results, averaging from 90 to 100 per cent Treatment will considerably lower this percentage In tertiary syphilis the Wassermann test is of greatest value in diagnosis Patients that have not been treated react positively in about 95 per cent of cases In those having irregular treatment the reactions are positive in about 75 per cent of cases The so-called parasyphilitic diseases, which a decade ago were classed under various headings, have now been proved by the Wassermann test and tissue stains to be but a manifestation of syphilis of the nervous system In general paresis the reaction is positive in the blood in about 100 per cent of cases, and in the spinal fluid in about 90 per cent Patients who have been treated in cases of tabes dorsalis average from 40 to 50 per cent positive in the blood test, while those who are untreated give positive results in from 96 to 100 per cent The cerebrospinal fluid in tabes dorsalis averages 60 per cent positive In cerebrospinal syphilis the positive reactions are nearly as high as in paresis

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[3] Gordon Arch Pediat 1916 xiii 273

[4] Engle and Reimer quoted by Kellner Ztschr f d Erforsch u behandl d jugend Schwachsinns iv 1

[5] Pollitzer Am Jour Obst 1916 lxxiii 857

The difficulty of diagnosis of latent cases of syphilis is increased by the indefinite history, by lack of clinical evidence of disease or by the peculiar and obscure manifestations of the disease It has been demonstrated by many that a history of the disease as given by the majority of those who may have been consciously or innocently exposed is of very little value Again, the patient may have syphilis clouded by a second disease or the symptoms may be those of a clinical entity entirely different from syphilis, and unless a Wassermann test is performed the true condition is overlooked and proper therapy neglected This difficulty of correct diagnosis is shown in a recent paper by one of us,[6] in which of fifty-six cases in the medical dispensary that reacted positively the tentative diagnosis of thirty-two was other than syphilis Only 50 per cent of those having positive reactions gave a history of having syphilis In another series of dispensary patients examined by Krumbhaar and Montgomery,[7] nineteen of forty-eight cases that gave positive reactions were tentatively diagnosed under other headings at the first visit Any physician who has had many Wassermann reactions performed on his patients knows how frequently a difficult and troublesome case is set right by the results of the test In latent syphilis the positive Wassermann reaction may constitute the only evidence of the existence of the disease and prompt specific therapy may prevent the appearance of tertiary lesions

TABLE 2—SYPHILIS AMONG WOMEN OF ALL CLASSES

	Number	Per Cent Positive
Married women	116	10 6
Single women	44	13 6
White women	146	9 5
Colored women	14	28 5

The Wassermann reaction is not only a valuable aid in diagnosis, but is equally important as a guide in the treatment of syphilis It should be emphasized in every case that the earlier treatment is begun the greater the possibility for the production of a permanent cure Moreover, treatment should be continued until the Wassermann becomes negative Treatment will modify the Wassermann in practically all stages of syphilis and change it to a negative in about 80 per cent of cases Since most investigators agree that a positive Wassermann means the presence of living spirochetes somewhere in the body, even though the lesion is not clinically manifest, it is necessary to persist in proper treatment until the Wassermann becomes negative and then to continue to keep it so

Most of the series of Wassermann tests in pregnancy that we have found reported deal with cases of known or suspected syphilis Thus E Bunzel[8] reports 88 8 per cent positive Wassermann tests in cases showing secondaries, 88 8 per cent in latent cases and 61 5 per cent in suspected cases In mothers of syphilitic children Leroux and L'Abbé[9] found 71 per cent in cases with no manifestations, 71 33 per cent in cases with outspoken manifestations, and 71 per cent in cases with doubtful manifestations E Adronesco and F Saratzeano[10] found 92 3 per cent in mothers with latent or developing syphilis P Mulzer and Michaelis[11] found 83 per cent positive in these cases In a series of 72 cases only twenty-one of which showed clinical manifestations, Baish[12] found 87 5 per cent positive Wassermanns

Some authors give lower figures Thus, Bar and Dannay[13] in pregnant and puerperal women with outspoken lesions found 41 66 per cent with total inhibition and 8 33 per cent with partial inhibition, and positive in only 13 12 per cent of cases with suspicious history, as repeated abortion and macerated fetuses Dannay[14] reports 53 3 per cent strong and 33 55 per cent moderately strong reactions in cases with open syphilis and 30 per cent in suspected cases Commisky[15] in a series of 1,822 routine Wassermann tests on pregnant women found 8 per cent positive Of those positive, 82 per cent gave no history or clinical evidence of the disease He quotes Williams to the effect that 75 per cent of his series give no history of the disease

The Wassermann reaction is still a reaction of mystery It is now recognized by most authorities that the test is not a true antibody-antigen reaction, but depends on certain lipotropic substances produced in the tissues of syphilitics during the progress of the disease The results of Noguchi[16] with practically pure spirochete antigen confirm those who hold that the Wassermann test is not a true immunity reaction He obtained a much smaller percentage of positive reactions with this antigen in known syphilitics than the Wassermann gave, and a larger percentage of positive reactions was obtained when the Wassermann had become negative On the other hand, negative reactions were obtained in leprosy when the Wassermann was strongly positive His results are very closely related to the immunity reactions as we understand them at this time Recently Zinsser, Malcolm and

TABLE 3—SYPHILIS AMONG DIFFERENT NATIONALITIES

Nationality	Number	Negative	Positive	Per Cent Positive
Negro	14	10	4	28 5
U S A	29	21	5	17 3
Polish	36	28	6	16 6
Irish	11	10	1	9
German	27	25	2	7 4
Bohemian	10	10		
Hungarian	6	6		
Lithuanian	5	5		
Swedish	4	4		
English	4	4		
Russian	4	4		
Jewish	3	3		
Slavish	2	2		
Roumanian	1	1		
Finnish	1	1		
French	1	1		
Danish	1	1		
Syrian	1	1		

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[6] Moore, J J The Journal A M A, Dec 4, 1915, p 1980

[7] Krumbhaar and Montgomery The Journal A M A, Jan 24, 1914, p 290

[8] Bunzel, E Wien klin Wchnschr, 1909, xxii, 1230

[9] Leroux and L'Abbe Arch de med d enfants, 1911, xiv, 881

[10] Andronesco, E, and Saratzeano, F Presse med, 1912, xx, 271

[11] Mulzer, P, and Michaelis Berl klin Wchnschr, 1910 xlvii, 1402

[12] Baish Quoted by Mulzer and Michaelis (Footnote 11)

[13] Bar, P, and Dannay, R Obstetrique, 1909, i 1

[14] Dannay Nouv arch d'obst et de gynec, 1912, i, 320

[15] Commisky Am Jour Obst, 1916, lxiii, 676

[16] Noguchi The Journal A M A, April 20, 1912, p 1163

McBurney[17] have used a pure spirochete antigen as a control in 159 cases and found twenty-one discrepancies, in a considerable number of which the spirochete antigen fixation indicated syphilis, which the ordinary antigen had missed They do not regard their reaction, however, as specific, because similar reactions could be obtained from cultures of typhoid and colon bacilli obtained in the same way They believe, however, from the apparently greater delicacy of the reaction that there is a certain specific element superadded

There are various theories in explanation of the test One of them by Bergel[18] is worthy of consideration The spirochetes contain lipoid substance which induces the formation of antibodies or ferments invested with the properties of dissociating fats The lipoid is similar to lecithin The ferment after it is formed causes a positive reaction by acting on the lipoid substances which are always employed as antigens and the splitting of these produces an absorption of complement Whether the complement is used up in the splitting process or becomes absorbed by the split products he does not state As long as the tissue fluids do not contain these fat-splitting ferments the reaction is negative Later, as this lipase increases, the reaction becomes positive It is well known that all ferments but especially the proteolytic, are increased in syphilis[19] Likewise we have a great concentration of ferments, especially the proteolytic, in pregnancy, pneumonia and various other conditions, as previously pointed out by one of us[20].

In nonpregnant conditions and in various diseases which increase the proteolytic ferments the Wassermann when performed with the best controlled technic is specific Whether such is the case in pregnancy, in which state the ferments of the blood are greatly increased, is one of the points for investigation in the present paper

The later work on the Abderhalden reaction has shown that there is a rise in the antiferment titer of the blood in pregnancy coincident with the increase in ferments The antiferments, at least for the proteolytic ferments, have been shown to be of lipoidal character[21] Hence, it will be seen that any condition such as pregnancy in which the lipoidal content of the blood is increased, an interference might theoretically be expected in the reaction that depends for its specificity on the presence or schism of lipoidal bodies

Abderhalden reactions performed in twenty-five cases of this series gave decided positive reactions, but no difference was noted in the cases giving a positive Wassermann This is not surprising, as by the dialysis method of the Abderhalden test quantitative results are not to be expected except in serums of widely different ferment titer

TABLE 4—POSITIVE WASSERMANNS IN PREGNANCY

Number	Race	Age	Para	Length of Pregnancy	Abortions	Civil Status	Social State	History of Syphilis	Remarks
1	U S A	28	3	8 mo		M	L	0	Healthy
2	U S A		6	6 wk after birth		M	L		Eclampsia blood drawn 6 hours after birth
3	German		4	7 days puerper		M	L		Postpart mania 2 tests 32 days apart
4	Polish	23	1	9 5 mo		S	L	0	
5	Polish	23	1	9 mo		M	L	0	
6	German	27	2	6 mo	0	M	L	0	Threatened abortion
7	U S A	21	2	9 mo	0	M	L	0	
8	Polish	22	1	9 5 mo	0	S	L	0	
9	Polish	19	1	8 hrs p p	0	S	L	0	
10	Negress	22	2	8 mo	1	M	L	0	
11	Irish	25	2		0	S	L		
12	Negress	36	6	10 mo	2	M	L	+	Two tests 1 month apart
13	Polish	24	2	9 mo	0	M	L	0	
14	Polish	23	2		1	S		0	
15	U S A	43	8		3	M	L	0	
16	U S A	20	1		2	S	L	0	
17	Negress	27	2	10 mo	0	M	L	0	Goiter
18	Negress	27	2		2	M	L	0	
Weak Pos									
19	U S A	17	2	8 5 mo	0	M	L	0	
20	Polish	27	2	8 5 mo	0	M	L	0	
21	U S A	21	2	10 mo	0	M	L	0	
22	Bohemian	24	6		1	M	L	0	
23	U S A	17	1	10 mo	0	S	L	0	
24	Polish	22	2	9 5	1	S	L	0	

TECHNIC

In our series of tests we used the antichicken hemolytic system Washed chicken corpuscles were made up in a 2 per cent suspension and to this was added twice the titer of hemolysin For complement we used fresh guinea-pig serum diluted to 8 per cent This was titrated each day and twice the titer employed in the test Two or more antigens were used in each test These were acetone insoluble fractions of beef and human heart properly titrated so that 0 1 c c of a 1 to 10 dilution was the antigenic dose for each test

All serums were heated to 56 C (132 8 F) for one half hour and used in amounts of 0 1 c c After the patient's serum, the antigen and complement were added to the test tubes, the total volume was made up to 1 c c by the addition of normal salt solution and then incubated for one hour, after which 1 c c of sensitized chicken corpuscles were added and the whole again incubated for one hour, at which time the readings were made

CLINICAL MATERIAL

The serums studied were obtained in a routine examination of the cases in the obstetric ward of Cook County Hospital, Chicago, and a few from private hospitals Blood was drawn at various intervals from the fifth week of gestation to the thirty-second day of the puerperium The majority were from the ninth month to term In a few cases only the retroplacental blood was examined In several cases fetal blood from the cord and mother's blood were examined simultaneously In a few cases Wassermann tests were repeated The results were identical in all but one This was a case of eclampsia with several postpartum convulsions The serum for the first test was obtained six hours after the delivery and was strongly positive A second one made eighteen days later proved negative No explanation of this is offered at this time

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[17] Zinsser Malcolm and McBurney Jour Immunology 1916 i 180
[18] Bergel Munchen med Wchnschr 1912 lix 1095
[19] Falls The Journal A M A Jan 1 1916 p 22
[20] Falls Jour Infect Dis 1915, xvi 466
[21] Jobling and Petersen Jour Exper Med 1914 xix 459

The ideal way would be to have a test made on the patient's entering the hospital, one at the time of delivery, and one a month later, but this was found to be impossible in the present series because of the nature of the material used

In the history of each patient we recorded the age, nationality, the number of the present pregnancy, length of the present pregnancy, history of syphilis, number of abortions, the legal status as to whether married or single, complications, and any other points that might be of interest

A total of 160 women were examined They ranged in age from 15 to 43 years, over 90 per cent being from 18 to 22 years of age Eight nationalities are included in this group The number of each with the percentage of positive reactions is shown in Table 1 Parity varied from 1 to 14, the majority being under 4 Only one gave a history of syphilis and five gave doubtful histories Twenty-three had had previous abortions, varying from one to four Forty-four women were unmarried

Eighteen, or 11 3 per cent of the women, gave strong positive reactions, six gave doubtful reactions, and not being repeated we could not justifiably classify these as being syphilitic Of 116 married women, 10 3 per cent were positive, of forty-four single women, the percentage positive was higher, being 13 6 per cent Among twenty-three giving a history of previous abortions, six, or 26 per cent, had positive tests All the positive results were on patients in the Cook County Hospital, as none of the patients from other hospitals who come into this series had syphilis These results are very close to those obtained by one of us[6] in a series of Wassermann reactions on medical dispensary patients, a class of individuals of the same social status as those under discussion In the dispensary series 13 6 per cent had positive reactions

Whitney[22] in the medical division of the outpatient department of the University of California Hospital found 21 8 per cent positive, and of the entire outpatient department, a series of 7,885 cases, found 6 9 per cent It might be objected that these series deal with patients of the lower grade of society in whom a prevalence of syphilis is more to be expected However, Kolmer[23] states that the disease is from three to eight times more prevalent among the better than among the lower classes Considering the eighteen giving a positive reaction, we find one had eclampsia, one postpartum mania, one threatened abortion, and one goiter None of the others had any complications The parity ranged from 1 to 8, the age from 18 to 43 One gave a history of syphilis and six, as stated previously, had previous abortions Six were unmarried Four were negresses

It is well known that syphilis is more prevalent among negroes than in the white race Our findings agree with this Among 146 white women examined 9 5 per cent were positive, among fourteen colored women 28 5 per cent, practically three times as many, were positive

From the results of this series it would seem that the cases complicated by toxemias and mental disturbances give a higher percentage of positive reactions From the small number of cases we do not feel justified in drawing definite conclusions

When we consider this fairly large percentage of pregnant women who have positive Wassermann reactions, who have improper treatment or none at all and who are continuously bearing syphilitic offspring, it is open to serious question if we as a profession are doing our duty by those patients Moreover, it must be remembered that all mothers who have latent syphilis do not react positively to the Wassermann test Boas[24] found that in eighty-one mothers giving birth to syphilitic children, only sixty-one, or 75 per cent, had a positive reaction Leroux and L'Abbe,[9] in another series of mothers who had given birth to syphilitic children, had a percentage of 71 reacting positively, whether they had symptoms of syphilis or not The fathers of these same children reacted positively in 42 per cent of cases This is easily explainable, as the fathers know the disease they have contracted, and are treated, while the mothers are in entire ignorance of their condition Leroux and L'Abbe[9] conclude that maternal syphilis is often latent without any manifestations, and therefore more often virulent because unrecognized and untreated Maternal syphilis, with a positive reaction, generally gives rise to outspoken symptoms in the child, sometimes to a latent syphilis with a positive reaction, and occasionally to healthy children A large majority of children reacting positively have symptoms of syphilis, while with those persistently negative the child usually remains healthy A positive reaction in a young child is an unfavorable prognostic sign

SUMMARY

The Wassermann reaction is of great value in diagnosing syphilis in pregnant women in whom the condition is usually latent

The diagnosis of this condition in mothers with the institution of proper treatment will prevent the increase of syphilitic children and those born can be properly treated as early as possible

The majority of mothers having syphilis are ignorant of their condition and therefore improperly treated

In a series of 160 pregnant women we found 11 3 per cent positive Wassermanns

In 116 married women 10 6 per cent gave a positive reaction

In forty-four single women 13 5 per cent gave a positive reaction White women were positive in 9 5 per cent of cases, colored women in 28 5 per cent

Only one of eighteen giving a positive reaction had a history of syphilis, six gave histories of previous abortions, three had severe complications of pregnancy, as eclampsia and mental psychoses

ABSTRACT OF DISCUSSION

Dr Edward P Davis, Philadelphia This paper carries with it a warning and a most important suggestion that the Abderhalden and the Wassermann tests are never entirely conclusive under all conditions of pregnancy, hence we must not rely exclusively on them The Abderhalden test has failed in a very considerable number of cases, the Wassermann test does not always detect latent syphilis Both tests should be employed with great caution and we come back to the old principle that study of the individual patient and clinical observation should never be neglected for laboratory findings

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[22] Whitney The Journal A M A, Dec 4, 1915, p 1986

[23] Kolmer The Journal A M A, May 6, 1916, p 1435

[24] Boas Quoted by Kolmer, Infection, Immunity and Specific Therapy, p 463

Dr J R Losee, New York During the past two years at the New York Lying-in Hospital we have made routine Wassermann tests on 2,000 antepartum women, 3 05 per cent were positive Fildes, in the East End of London, observed 3 9 per cent in 677 women This work was undertaken with the intention of treating these syphilitic pregnant women, but it was found that without a proper sociologic organization it was impossible to carry it on, for these patients often failed to return for treatment Observers have shown that from 40 to 50 per cent of women who have given birth to repeated macerated fetuses are syphilitic, and in many other cases the history is doubtful Of twenty-seven women who were delivered of macerated fetuses at the hospital, nine, or 37 per cent, gave a positive reaction Syphilis has also been credited for the intrapartum death of the infant but at this stage the many other mechanical conditions which arise and cause the death must be considered However, before we can obtain any degree of success in the care of these unfortunate women, antenatal clinics will have to be established and supplied with sufficient nurses who will follow up these women in their homes

Dr. Frederick H Falls, Chicago I agree with what Dr Davis said about the results of the Abderhalden and Wassermann tests We must be careful about interpreting any biologic test as being absolute evidence and negating all clinical evidence However, in the hands of the best men, we find that the Wassermann reaction is to be relied on in a large percentage of cases, and my plea is that we use this valuable aid in these pregnant women in order to give them a better chance to combat the disease during and after pregnancy and the offspring a better chance of starting life without the handicap of syphilis in an outspoken degree The value of the Abderhalden test is very questionable Two years ago, at Atlantic City, I pointed out the number of cases in which fallacies arose when the Abderhalden test was performed on nonpregnant individuals Many of these gave positive results Its greatest value was shown to be in a negative reaction When negative it ruled out the possibility of pregnancy, when positive, the woman might or might not be pregnant The reason for bringing the Abderhalden test into this discussion is that according to the latest work, particularly that of Jobling and Petersen, the Abderhalden reaction is dependent largely on the production of antiferments in the blood which are lipoidal in character The Wassermann test probably is dependent on the production of lipolytic ferments in the blood of syphilitics If the blood serum in these two conditions contains these constituents you can see that it would be theoretically possible that pregnancy might throw off the Wassermann test Apparently, from our study it does not Dr Losee with a large number of cases, larger than ours, found 3 per cent positive I think the average returns on Wassermann test as performed throughout the country will give a higher percentage There may be some explanation for the apparent discrepancy in his series The one thing I should mention also in regard to his statement about the death of the fetus being ascribed to syphilis and not due to it is that in any given case not only should a Wassermann be done, but the cord and placenta should also be examined for spirochetes Dr Slemmens of Yale occasionally gets positive demonstrations of spirochetes in the placenta or cord in the presence of a negative Wassermann in a known syphilitic mother One cannot be too careful in making a search for the evidence of syphilis The subject is one of great importance, for the mother, the baby, and for us as physicians

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Cleanliness —Long experience has taught the lesson that cleanliness offers a protection against disease, that clean surroundings are apt to be free of infection and that clean food is apt to be safe food —Rosenau, Preventive Medicine

A STUDY OF AN EPIDEMIC OF FOURTEEN CASES OF TRICHINOSIS WITH CURES BY SERUM THERAPY

PRELIMINARY COMMUNICATION *

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The following observations were made in the course of a study of an epidemic of fourteen cases of trichinosis in which the patients were admitted to the wards of the St Joseph's Hospital at Far Rockaway, N Y The laboratory studies were made partly in the laboratory of the hospital and partly in my home Observations 1 to 6 inclusive represent confirmation or amplification of findings already made by other authors All the other findings are new

1 The Kernig reaction was present in all the cases

2 Edema of the face occurred in all the cases

3 Edema of the lower extremities occurred in six cases

4 The reflexes in the lower extremities were abolished in all the cases and are still absent now (six months having elapsed since the cases first came under observation)

5 Trichinae were found in the blood in nine cases of the fourteen

6 Trichinae were readily found in the cerebrospinal fluid in eight of the fourteen cases

7 The diazo reaction was in direct proportion to the degree of eosinophilia

8 Gangrene of one lower extremity was observed once

9 The leukocytosis diminished as the eosinophilia increased The blood coagulation time is markedly prolonged in trichinosis

10 In one case trichinae were still found in the cerebrospinal fluid of a child 3 years of age three months after clinical recovery

11 Trichinae were found in a pleural exudation once

12 Trichinae were not found in the urine in any case

13 Trichinae were not found in the uterus but were abundantly present in the placenta

14 Trichinae were present in large numbers in the milk of a nursing woman and were found in the piece of excised mammary gland

15 In one case complicated by furunculosis, trichinae were found in the pus of a furuncle of the external auditory canal On inoculation into a rabbit, trichinosis was produced

16 In two cases the duodenal tube was passed under control of the fluoroscope In one of the two cases trichinae were abundantly found This patient is now suffering from cholecystitis

17 The feces were clay colored throughout the disease in every case, and have the same appearance in the five cases that have remained under observation From experimental studies it appears probable that the color is due to the reduction of bilirubin by living trichinae

18 In a cat which accidentally developed trichinosis after eating a rabbit in which trichinosis had

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* Read by invitation at a meeting of the staff of the Pathological Laboratory Mount Sinai Hospital New York July 12, 1916

been experimentally produced, the stools were also found to be clay colored

19 Trichinae were present in the stools of all the cases throughout the disease and in three cases in which studies in this direction were carried on after recovery They are easily proved to be present by making the stools alkaline and allowing them to stand from twelve to twenty-four hours

20 Trichinosis was produced by the injection of pleural fluid from a case of trichinosis

21 Trichinosis was produced by feeding feces from cases of trichinosis to two dogs

22 On feeding infected meat to animals the eosinophils appear usually within the first five days In one case 10 per cent of eosinophils were found after thirty-six hours There was no leukocytosis when the eosinophilia first appeared

23 The blood of a series of infected animals was examined for trichinae After five days' examination it was negative in all The first trichinae were found on the seventh day, two or three then being seen in each field The temperature during the first five days remained from 100 to 101 F

24 Trichinae were absent in the heart muscle, as was also the eosinophilia Feeding of heart muscle to animals gave negative results

25 Intraperitoneal injection of urine from cases of trichinosis caused no infection

26 Trichinae occurred abundantly in the brain, and on injection of such tissue into animals the disease can be produced, the eosinophilia being more marked than any other form of production of the disease

27 Trichinae were found abundantly in the pancreas

28 As many as four coiled trichinae were found in muscle fibers

29 Ascites occurred in the experimental disease in animals

30 The use of serum from human patients who recovered removed the eosinophilia persisting after recovery in man or animals within forty-eight hours

31 The injection of normal serum had no therapeutic value in trichinosis in man or animals The same is true of salvarsanized serum and salt solution

32 In animals the injection of convalescent serum gives an almost complete prophylactic result Animals fed with infected meat within twenty-four hours after the administration of the serum may develop a mild form of trichinosis Animals fed at a period later than that prove to be immune All these experiments were controlled

33 If immune serum is mixed with infected meat and then fed, the animals do not develop trichinosis, although the ingestion of the same meat without the serum is invariably followed by the appearance of the disease

34 In two cases of trichinosis in the very active stage of the disease the use of immune serum proved to be of remarkable curative value There was a decided drop in the temperature within six hours and the abnormal temperature was entirely gone within forty-eight hours The eosinophilia showed a considerable drop within six hours, there was then a secondary rise and then a return to the figures found in normal blood within forty-eight hours

35 In twenty-four rabbits suffering from the disease experimentally produced, the immune serum had a curative effect within twenty-four hours

CARBON MONOXID POISONING

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In the course of investigations carried out for the United States Bureau of Mines on the efficiency of artificial respiration or "resuscitation" apparatus,[1] and on the mine rescue, or oxygen breathing, apparatus worn as a protection against asphyxiating gases,[2] my attention was called to the fact that there is a widespread misapprehension of some of the fundamental elements concerned in carbon monoxid poisoning A brief statement of these facts, of the results obtained by investigators in the Bureau of Mines,[3] and of some of my own experience may therefore be of use both to clinicians and to experimenters

Carbon monoxid is the principal product of incomplete combustion of carbonaceous matter It is responsible for more deaths than the total of all other gases To carbon monoxid are chiefly due the poisonous effect of smoke in burning buildings, of fumes around furnaces and from explosives, of the "afterdamp" of explosions of methane and coal dust in mines, and from mine fires of timber or coal To it also are due the unfortunately large number of fatalities in American cities from the character of the illuminating gas supplied[4]

Carbon monoxid is almost odorless, and has no irritating effect on the lungs It appears, indeed, to be physically and in relation to the tissues of the body, even including the nervous tissues, an entirely inert and harmless gas except in a single respect — its avidity for hemoglobin, the red coloring matter of the blood With this substance it forms exactly the same kind of combination as does oxygen, but with an attraction approximately 250 times as strong Its poisonous effects appear to be wholly due to the resulting decrease in the oxygen carrying power of the blood

The character of the combination of carbon monoxid with hemoglobin may be seen from the following simple experiment

A drop of blood drawn from the finger is diluted with water, a drop of very dilute ammonia is added, and the reddish yellow solution is shaken with air One third of this solution is poured off in a test tube, while the remaining two thirds are shaken with illuminating gas in another test tube In the course of a few minutes this portion assumes the cherry red tint characteristic of carbon monoxid hemoglobin It is now divided into two parts, one of which is set aside in a third test tube, while the other is vigorously shaken with air In a few minutes this sample has lost its cherry tint and has returned to the appearance of the normal blood set aside in the first test tube mentioned above The mass action of the oxygen of the air has displaced the carbon monoxid from its combination with the hemoglobin To all intents and purposes the condition of this blood is the same as if it had never been combined with carbon monoxid

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[1] For a statement of the results of these investigations see Henderson, Yandell Resuscitation Apparatus, The Journal A M A, July 1 1916, p 1

[2] See a forthcoming Bulletin of the Bureau of Mines, by Yandell Henderson and J W Paul

[3] Burrell, G A, and others Technical Papers 11, 62, and 122, U S Bureau of Mines

[4] Illuminating gas is composed in varying amounts (depending chiefly on the price of petroleum) of "water gas," "coal gas," and the vapor from superheated or "cracked" petroleum So called "water gas" contains about 30 per cent of carbon monoxid It is comparatively cheap to manufacture, and is produced by blowing live steam over hot coal with the general reaction $C + H_2O = CO + H_2$ The gas formed by the destructive dry distillation of coal, technically called 'coal gas," contains only about 6 or 8 per cent of carbon monoxid It is therefore far less poisonous than 'water gas" The hydrocarbons which it contains, which give the gas flame its luminosity, and which have to be supplied to water gas" from petroleum vapor, are toxicologically practically negligible 'Coal gas" is chiefly used in European cities, while "water gas" is the chief ingredient in America Yet in many European cities, particularly in England, the price of gas to the consumer is only 50 or 60 per cent of that usual in American cities Owing to the greater proportion of "coal gas" and less "water gas," the leakage of the same amount into a bedroom in England will cause the occupant merely a bad headache, while in America death or serious injury results There is an intimate causal connection between inflated capitalization, a large proportion of water gas, and the high death rate from carbon monoxid poisoning in American cities Few facts are more significant than this in indicating how deeply we must cut into social problems in order to apply preventive medicine

It is a complete misapprehension, therefore, to suppose that carbon monoxid forms a permanent compound with hemoglobin, or induces any lasting deterioration in its oxygen carrying power When a man has been overcome by carbon monoxid, and is thereafter brought out of the bad atmosphere into fresh air, the combination of carbon monoxid with the hemoglobin of his blood immediately begins to break up The higher the percentage of oxygen in the air inhaled, the sooner the carbon monoxid is displaced and the oxygen carrying capacity of the hemoglobin restored For fifteen or twenty minutes after removal from the poisonous atmosphere (but not for more than half an hour), it is beneficial to administer pure oxygen or air considerably enriched with oxygen by means of a tank, bag, and mask with valves which do not allow rebreathing Even when only pure air is breathed, the mass action of its oxygen is usually sufficient to displace the greater part of the carbon monoxid in an hour or even less time, so that the oxygen carrying power of the hemoglobin is restored sufficiently to meet the patient's needs Practically all of the carbon monoxid is thus eliminated, and the hemoglobin fully restored in three or four hours This result is facilitated by the rapid breathing, usually from thirty-five to forty times a minute, which such patients, if not too profoundly asphyxiated, usually develop within half an hour after being removed to fresh air

Very often the victim never recovers consciousness, and dies a day or two later Many physicians still hold to the belief, now completely disproved, that the prolonged coma is due to retention of the carbon monoxid, and advocate bleeding and infusion of oxygenated saline solution, the transfusion of blood from some healthy person, and other active efforts at restoration The minimum time within which it is possible to apply such measures is seldom less than two hours after the patient is brought into fresh air None of them, nor any known procedure, aside from careful nursing and symptomatic treatment, has been conclusively demonstrated in practice to be of benefit, or has any distinct experimental support Recovery, when it occurs, is not due to such procedures but occurs more or less in spite of them There is no reason to expect them to be beneficial, since it is not retention of carbon monoxid, nor any direct action of the gas, but the results of the injury to the brain and other organs due to insufficient oxygen supplied by the blood while the patient was breathing the gas, which is responsible for the prolonged coma and subsequent death or incomplete recovery There is no known method of restoring tissues to normality after parenchymatous degenerations have once been initiated Left to itself, nature does all, so far as present knowledge goes, that can be done to stop the abnormal processes The man recovers completely if the asphyxia has not been too intense and prolonged, although in many cases men who have once been "gassed" exhibit a muscular weakness of the heart permanently thereafter In more severe cases, the patients recover only with the loss, partial or complete, of vision, power of speech, or with some other nervous defect

To a great extent the severity of the immediate and after-effects of inhaling carbon monoxid depends on the following conditions In a normal man at rest the tissues consume only a little over one third of the oxygen which the blood brings to them, while during muscular exertion nearly two thirds are utilized Accordingly the blood of a man at rest may become nearly one third saturated with carbon monoxid without his realizing that anything is wrong His judgment, temper and behavior, however, are often affected in ways similar to alcoholic intoxication Such behavior is often seen in city firemen and in the men of a mine rescue crew after breathing smoke Similar behavior occurs frequently among transient visitors to the summit of Pike's Peak, and is clearly due to deficiency of oxygen

If a man in this condition tries to make any considerable exertion, the fraction of his hemoglobin uncombined with carbon monoxid may be insufficient to transport the oxygen needed, and he is liable to collapse When more than half saturated, he is liable to collapse even at rest If he remains for a considerable time in this condition, the delicate nerve cells of the brain, and less often also other organs, are injured by the insufficient supply of the oxygen which the blood is able to transport to them, and unconsciousness (coma) results As a rough estimate, it may be stated that usually a man will die who has breathed 0 2 per cent of carbon monoxid mixed with air which is in other respects normal, for four or five hours, or 0 4 per cent for one hour With from 2 to 5 per cent of carbon monoxid, as after an explosion of coal dust, nearly all of the hemoglobin is combined by the first few breaths drawn, and death follows almost as quickly as in drowning This is the case also when illuminating gas only slightly diluted with air is inhaled

The percentage saturation finally reached in breathing any mixture of air and carbon monoxid depends on the relative amounts of the two gases present in the inspired air, multiplied by their relative affinities for hemoglobin The rate at which the partitioning of the hemoglobin between the two gases proceeds toward the equilibrium point depends largely on the volume of the subject's breathing A child having a relatively greater respiratory exchange for its size is overcome more quickly than an adult

On this account small animals, as mice and birds are overcome much more quickly than are men Canaries are always carried by the rescue crews of the Bureau of Mines into mines in which there is reason to suspect the presence of carbon monoxid After the bird has fallen from its perch the portable cage can be closed and oxygen run in from a small tank attached to it Experience demonstrates that birds may be thus temporarily asphyxiated and revived repeatedly in the course of a few hours, or on many successive days, and be none the worse thereafter This could scarcely be the case if carbon monoxid had any general poisonous action apart from its temporary combination with hemoglobin Furthermore, the evidence available indicates that the mere breathing of inert gases deficient in oxygen but containing no poisonous element produces symptoms, degenerations and subsequent death in all respects like those resulting from carbon monoxid poisoning

The foregoing statements regarding the effects of carbon monoxid are based principally on the classic work of Haldane,[5] which the experience of the Bureau of Mines has confirmed in all principal features

As further evidence that carbon monoxid is not in even the smallest degree a protoplasmic poison, the experience of the Pike's Peak expedition, of which I was a member, is of value Both at ordinary altitudes and at the summit of the peak, the carbon monoxid method of determining the blood volume was repeatedly employed on every member of the party This method involved the subject's inhaling a measured volume of the gas sufficient to combine with approximately 20 per cent of his hemoglobin No vigorous exertion was made for an hour or two after the inhalation, and no considerable ill effects were experienced Within two or three hours practically all of the carbon monoxid had been eliminated, and the subject was usually as fit for vigorous exertion as before In fact, he usually went for a hard tramp or climb in the afternoon of the same day This, of course, would not have been possible, especially in the thin air of a great altitude, if any lasting deterioration in the hemoglobin of the blood or combination of carbon monoxid in the nervous system had been produced

In contrast with this experience may be placed the fact that in cases of illuminating gas poisoning, the patients are usually completely comatose long after the carbon monoxid in the blood has fallen much below 20 per cent I have repeatedly examined such cases in New Haven, Conn , both suicides and innocent victims of the deadly "quarter meter" In six successive cases in which a sample of blood was taken for examination in from one to two hours after the patient had been removed to fresh air from the room in which the "gassing" had occurred, the elimination of carbon monoxid was found to have been so rapid that in only two cases was the presence in the blood of from 15 to 20 per cent demonstrable All of these cases had probably been saturated up nearly to or beyond the danger point of 60 per cent Yet from one to two hours in fresh air had served to eliminate the carbon monoxid in every case down to less than 20 per cent, the amount which the small pocket spectroscope employed was easily capable of distinguishing From three to four hours after removal to fresh air, the blood contained only undetectable traces Four of these patients died within from twenty-four to sixty hours after the asphyxiation, one recovered completely, another still exhibited a month later a profound nervous impairment

These observations are sufficient to demonstrate the unwisdom of bleeding patients who have been poisoned with carbon monoxid, as is sometimes done in order to stimulate the formation of new red blood cells Such a formation requires many days to become fully effective In the majority of cases the patient's blood is practically free from carbon monoxid before the bleeding is performed Carbon monoxid poisoning occurs with such variations of circumstance, as size of room, flow of gas, duration of exposure, etc, and the cases exhibit such wide variations in the severeness of the initial symptoms, in the length of time required for recovery, and the completeness of restoration, that it is difficult to establish conclusions regarding them from merely clinical or even statistical evidence From the experimental side, however, there is nothing which would seem more likely to diminish a patient's chance of recovery than treatment by bleeding

The most exacting requirements for experimental evidence are met by the following cases

> Three men, all members of a Filipino band of approximately the same age, weight and physique, were overcome by illuminating gas while sleeping in a room together One was treated during the following day by withdrawing blood and injecting saline solution saturated with oxygen For a second a transfusion of blood from another and unpoisoned member of the Filipino band was performed It was done late in the day and probably after all of the carbon monoxid had been eliminated For the third nothing was done beyond the ordinary procedures of good nursing The first two died in the course of the two or three days following the asphyxiation The third survived, but when seen three weeks later, had recovered only sufficiently to answer the simplest questions as to his name and where he came from

Thus it appears that about all that can be done in cases of carbon monoxid poisoning is to administer artificial respiration when the patients' own breathing has failed or is feeble, to administer oxygen for half an hour (longer is useless), to keep them warm if their temperature has fallen, to supply water to the system preferably by a Murphy drip, and otherwise to give them good nursing and such symptomatic treatment as may be called for

To these rather negative suggestions there is, however, one of an experimental character which may be added It arises from the fact that the coma following asphyxiation has many points of resemblance to diabetic coma The symptoms of asphyxial coma, especially the character of the breathing and the reaction and contents of the urine, indicate an intense acidosis Accordingly in two cases I have administered a 3 per cent solution of sodium bicarbonate intravenously In one case a total of 2 quarts was given at intervals in two hours, and in the other a total of 4 quarts in six hours The rate of inflow was regulated to avoid overloading the heart by noting the extent of distention of the veins of the neck and of the back of the hand It was found that in spite of the very considerable supply of alkali to the system, the urine continued to show a strongly acid reaction, and no appreciable amelioration of symptoms resulted

As my opportunities in such matters are of quite irregular occurrence, I would suggest that others with more frequent cases try out the possibilities of this line of treatment In view, however, of the fact that in diabetes the administration of alkalies after the development of coma is of only temporary benefit, the probabilities are rather against permanent relief by this treatment of cases of asphyxia As with all treatments of gas poisoning, there may be brilliant recoveries in apparently desperate cases — I have one such in my own experience — in which, when all the evidence is taken into account, it becomes apparent that nature alone deserves the credit

CONCLUSIONS

1 Carbon monoxid is a physiologically harmless gas, except in its affinity for hemoglobin Its toxic effects are wholly due to the inability of the blood combined with carbon monoxid to transport oxygen to the tissues

2 Carbon monoxid does not form a permanent compound with hemoglobin In the presence of excess

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[5] Haldane, J S Jour Physiol, 1895, xviii, 200, 430 and 463 For a summary of Dr Haldane's observations, both on the scientific side and in the laboratory and in practical work after mine explosions in England, see Report to the Secretary of State for the Home Department on the Causes of Death in Colliery Explosions and Underground Fires, London, 1896

oxygen, or even of pure air, carbon monoxid is rapidly given off and the oxygen carrying power of the hemoglobin is restored

3 The continuance of coma, the subsequent tissue degenerations, and death after several days, resulting from carbon monoxid poisoning, are not due to retention of the gas, but are the results of injury to the brain and other organs by the insufficiency of oxygen supplied to them by the blood while the patient was breathing the gas

4 There is no reason to believe that either bleeding or transfusion of blood is beneficial They are more likely to be harmful

5 Fresh air — with oxygen inhalation for a short time as early as possible — symptomatic treatment, and good nursing are the only measures to be recommended Practically the die is already cast for death, permanent defects, or complete recovery at the moment when the patient is brought out of the asphyxial atmosphere

6 It is just possible theoretically that alkali therapy may be beneficial in combating the acidosis induced by asphyxia

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A NOTE ON THE SERUM TREATMENT OF POLIOMYELITIS (INFANTILE PARALYSIS) [*]

SIMON FLEXNER, M D
NEW YORK

The epidemic of poliomyelitis that is prevailing at the present time so extensively in New York and in some degree widely throughout the United States has led to many inquiries being made regarding the serum treatment of the disease, and particularly of the stage to which the treatment has advanced This brief paper is intended not only to answer such inquiries, but also to provide a basis for the wider employment of the treatment where the difficult conditions surrounding the obtaining of immune human serum can be surmounted

It was demonstrated by Flexner and Lewis,[1] and afterward confirmed by several investigators, that monkeys which had recovered from an attack of poliomyelitis induced experimentally were *not* subject to successful reinoculation with the virus of the disease This was followed by the detection by Romer and Joseph[2] and later by others in the blood of such resistant or protected monkeys, and then by Levaditi and Netter,[3] and by Flexner and Lewis in the blood of human beings who had recovered from acute poliomyelitis of immunity substances which possessed the power of neutralizing the virus of poliomyelitis when the serum and the virus were brought together in the test tube Flexner and Lewis ascertained also that the serum of monkeys actively immunized[4] with the virus, under conditions in which all symptoms of the disease were avoided, contained similar immunity bodies

EXPERIMENTAL SERUM THERAPY

The next step taken was the determination by Flexner and Lewis that both the immune monkey[5] and the immune human serum[4] which exhibited the neutralizing power for the virus possessed also therapeutic properties for monkeys inoculated with the potent virus of poliomyelitis in contradistinction to the normal serum from the same animal sources which was devoid of those properties

The experimental demonstration of the therapeutic activity of the immune serums was made in the following manner Rhesus monkeys were inoculated (*a*) intracerebrally and (*b*) intranasally with a virus which had become adapted to the monkey and was highly potent The effective intracerebral dose of a Berkefeld filtrate of a 5 per cent emulsion of the spinal cord of an infected monkey was less than 0 01 c c Hence the quantity of the filtrate injected into the brain of the etherized monkeys varied from 0 01 to 0 1 c c The inoculations were made in the afternoon, and the therapeutic treatment was begun the next day or from eighteen to twenty-four hours later When the virus was introduced by the nasal route the filtrate was not employed, but an emulsion of the spinal cord was rubbed on the upper nasal mucosa

The immune serums were applied by intraspinal or subdural injection The usual method was to inject from 2 to 3 c c of the immune serums through the lumbar puncture needle daily for several days or daily for three injections, followed by an interval of three days, when the three injections were repeated The conclusions reached from these experiments were in substance that if the quantity of virus is not in excess of a given dose, the infection can be either wholly prevented or the onset of the paralysis much delayed In other words, when dealing with the virus adapted to the monkey which induces poliomyelitis almost without exception and in which the symptoms are far more severe and the mortality far greater than occur in the disease in human beings, the immune monkey and human serums are capable of preventing in all but a few instances the development of the virus even when inoculated intracerebrally, and in the exceptional instances in which the development is not wholly prevented, the onset of the disease is much delayed The power, therefore, to neutralize the virus possessed by the immune serums is exercised in vivo under severe experimental conditions almost as constantly as in vitro under relatively favorable ones

In order that maximal effect of the immune serums may be secured, it is necessary that the injections be made into the subdural space, which can be readily and safely accomplished by means of lumbar puncture The reason for this mode of application of the serum depends on the facts that it is the most direct route to the central nervous tissues, and however the virus is introduced into the body, it establishes itself in the cerebrospinal meninges[6] It is logical, therefore, to endeavor to bring the immune serum, in as high a concentration as possible, into immediate relation with the seat of disease

The power of immune serum, when injected subdurally, to prevent the development of experimentally induced poliomyelitis in the monkey, is further indicated by experiments[7] in which, on the one hand, the virus has been injected into the blood under conditions insuring its escape into the meninges and, on the other, when an emulsion of the virus has been introduced directly into the meninges and followed later by the serum injection

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[*] From the Rockefeller Institute for Medical Research

[1] Flexner Simon and Lewis P A Epidemic Poliomyelitis in Monkeys (Fourth Note) The Journal A M A Jan 1 1910 p 45

[2] Romer P H and Joseph K Munchen med Wchnschr 1910 lvii 568 Levaditi and Landsteiner Compt rend Soc de biol 1910 lxviii 311 Flexner Simon and Lewis P A Experimental Poliomyelitis in Monkeys Seventh Note The Journal A M A May 28 1910 p 1780

[3] Levaditi and Netter Presse med 1910 xviii 268 Flexner Simon and Lewis P A Seventh Note (Footnote 2)

[4] Flexner Simon and Lewis P A Experimental Poliomyelitis in Monkeys Eighth Note The Journal A M A Aug 20 1910 p 662

[5] Flexner Simon and Lewis P A Seventh Note (Footnote 2)

[6] Flexner Simon and Lewis P A Seventh Note (Footnote 2) Flexner Simon The Contribution of Experimental to Human Poliomyelitis The Journal A M A Sept. 24 1910 p 1105 Flexner Simon and Amoss H L *Penetration* of the Virus of Poliomyelitis from the Blood into the Cerebrospinal Fluid Jour Exper Med 1914 xix 411

SERUM THERAPY IN MAN

This aspect of the subject has been imperfectly developed up to the present time Netter[8] was the first to apply the data obtained by experiments on monkeys to the treatment of cases of epidemic poliomyelitis in man He has published the results obtained in a small series of thirty-five cases which he regarded as highly favorable to the method He employed the serum from cases of poliomyelitis in which complete recovery from the acute condition has taken place some time — even as long as thirty years — previously The serum injections were given subdurally as early after the appearance and recognition of the symptoms of poliomyelitis as possible The dose of the serum, which must, of course, be sterile but need not be inactivated, should be determined by the age of the patient and will, in part, be determined by the quantity of serum available Probably doses ranging from 5 to 20 c c will be found suitable, the injection to be repeated several times at twenty-four hour intervals according to clinical conditions and indications The effects of the immune serum should be sought in the checking of the progress of the disease, namely, the prevention or minimization of the paralysis when employed in the preparalytic stages, and the arrest of its extension when used in progressing paralytic conditions Since the immunity substances have been determined by neutralization tests to persist in the blood for many years, it is probable, as Netter has indicated, that persons who have passed through an attack of poliomyelitis many years earlier may be utilized as sources of the serum,[9] reasoning from analogy it would probably be advantageous to prefer persons whose attack was less remote so as to insure as high concentration of the immunity bodies as possible The conditions surrounding the injection of the serum into the meninges are identical with those observed in the analogous case of epidemic meningitis Before each dose of serum is injected a suitable quantity of the cerebrospinal fluid is to be withdrawn, and the injections should be made slowly In choosing the person who is to serve as the source of the blood from which the immune serum is to be derived precaution should of course be taken to secure a healthy donor, it would be advisable to fortify the usual clinical examination by a Wassermann test

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[7] Flexner, Simon, and Amoss, H L Localization of the Virus and Pathogenesis of Epidemic Poliomyelitis, Jour Exper Med, 1914, xx, 249

[8] Netter, A Serotherapie de la poliomyelite nos resultats chez trente deux malades Indications, technique — incidents possibles, Bull de l'Acad de med, Oct 12, 1915 Netter, A, and Salanier, M Deux nouveaux cas de poliomyelite a debut meninge gueris par les injections intrarachidiennes de serum d'anciens malades, Bull et mem Soc med d hop de Paris, March 10, 1916

[9] Flexner, Simon The Contribution of Experimental to Human Poliomyelitis, The Journal A M A, Sept 24 1910, p 1105

The Prevention of Tuberculosis — When mankind fully appreciates the fact that three out of probably every four of the so-called delicate people we know are delicate because they have tubercle bacilli, active or inactive, latent or concealed, in open or closed tissues, though most often unknown to themselves, then we may, and doubtless will, begin to arrive in perceptive visibility of the, as yet, delayed solution of the tuberculosis problem — Way

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Therapeutics

BLOOD PRESSURE

(Continued from page 511)

THE EFFECT OF DRUGS ON BLOOD PRESSURE

Free catharsis is a well established and valuable method of relieving the heart in many cases of broken compensation, and in cases with high blood pressure even while compensation is still good, salines administered once or twice a week assist in elimination, and in the reduction of blood pressure

However, profuse purging in heart disease may be followed by unfavorable symptoms, especially when the systolic blood pressure is low When there is hypotension, or when the diastolic pressure is high and the venous pressure is high, and when there is edema or effusion, watery catharsis should be caused only after due consideration, and always with a careful watching of the effect on the heart and blood pressure The blood pressure is lowered by such catharsis, and the heart is often slowed Neilson and Hyland[45] studied the effect of purging on the heart and blood pressure, and were inclined to the view that in serious heart conditions brisk purging should not be done They think that the slowing of the heart after such purging may be due to an increased viscosity of the blood, or perhaps to a reflex irritation from the purgative on the intestinal canal

Pilcher and Sollmann[46] have shown that the fall of blood pressure after the administration of nitrites is mostly due to the action of these drugs on the peripheral vessels Chloroform, of course, depressed the vasomotor center, but ether had no effect on this center, or slightly stimulated it Such stimulation, however, Pilcher and Sollmann believe may be secondary to asphyxia Nicotin they found to cause intense stimulation of the vasomotor center Ergot and hydrastis and its alkaloids seem to have no effect on the vasomotor center Strophanthus acted on this center only moderately, and digitalis very slightly, if at all Camphor in doses large enough to cause convulsions stimulated the vasomotor center In smaller doses it generally stimulated the center moderately, but not always Even when this center was stimulated, however, the camphor did not necessarily increase the blood pressure The rise in blood pressure from epinephrin is due entirely to its action on the peripheral blood vessels and the heart It has no action on the vasomotor center They found that strychnin in large doses may stimulate the vasomotor center moderately, but usually it did not act on this center unless the patient was asphyxiated, then it acted intensely The conclusion to be drawn from their experiments is that when there is asphyxia, increased venous pressure, and also a rising blood pressure from the stimulation of carbon dioxid, strychnin is contraindicated

It should be recognized that digitalis very frequently not only does not raise blood pressure, but also may lower it, especially in aortic insufficiency and when there is cyanosis Even with some forms of angina pectoris, digitalis in small doses may reduce the frequency of the pain This decrease of pain following the use of digitalis has in some cases been ascribed to the improvement of coronary circulation and resulting better nutrition of heart muscle Of course under these conditions the action of digitalis must be carefully watched, and it should not be given too long

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[45] Neilson, C H, and Hyland, R F The Effect of Strong Purging on Blood Pressure and the Heart, The Journal A M A, Feb 8, 1913, p 436

[46] Pilcher and Sollmann Jour Pharmacol and Exper Therap 1915, vi, 323

Although sodium nitrite and nitroglycerin have but a short period of action, in laboratory experimentation, in lowering the blood pressure, when given repeatedly four or five times a day the blood pressure is lowered in very many instances by these drugs Sometimes when the blood pressure is not lowered, there is relief of tension in the head from high pressure, and the patient feels better There is also relief of the heart when it is laboring to overcome a high resistance One drop of the official spirit of nitroglycerin on the tongue will cause a lowering in the peripheral pressure pulse, the radial pulse becoming larger and fuller This effect begins in three minutes or less, reaches its maximum in about five minutes, and the effect passes off in fifteen minutes or more[47]

It has been stated that iodids are of no value except in syphilitic arteriosclerosis, but iodids in small doses are stimulant to the thyroid gland, and the thyroid secretes a vasodilating substance Therefore, the use of either iodids or thyroid would seem to be justified in many instances of high blood pressure

Fairlee[48] has studied the effect of chloroform and ether on blood pressure, and finds that there is a fall of pressure throughout the administration of chloroform, and but little alteration of the blood pressure during the administration of ether It may cause a slight rise, or it may cause a slight fall, but changes in pressure with ether are not marked When there is slight surgical shock present, as from some injury, they found that chloroform would lower the pressure considerably Hence it would seem that chloroform should not be used as an anesthetic after serious injuries

THE EFFECT OF DRUGS ON VENOUS BLOOD PRESSURE

Capps and Matthews[49] have shown that even with first class preparations of digitalis, there may be only a moderate gradual rise in arterial pressure, but not much change in venous pressure Venous pressure was not much affected by small doses of epinephrin, but with large doses it rose from 10 to 80 mm Pituitary extract acts somewhat similarly to epinephrin Caffein, though raising the arterial pressure, did not influence the venous pressure Strychnin did not raise either pressure until the dose was sufficient to cause muscular contractions They found that the nitrites caused a fall in venous pressure as well as arterial pressure, although the heart might be accelerated and more regular They think that the nitrites act by depressing the nerve endings in the veins as well as the arteries Morphin they found did not act on the venous pressure, although it lowered arterial tension, in ordinary doses of ⅛ or ⅙ grain, but with doses of from ¼ to ½ grain, both arterial and venous pressures were lowered They found that alcohol in ordinary doses did not influence the venous pressure, although it lowered the arterial pressure, but very large doses lowered the arterial and raised the venous pressure They think that when the venous pressure is increased only by large doses of epinephrin, pituitary extract and alcohol, the effect is due to failure of the heart, although it may be due to an increase of carbon dioxid in the blood, in other words, to asphyxia

HYPERTENSION

Arterial hypertension may be divided into stages In the first stage the arteries are healthy, but the tone, owing to contraction of the muscular walls, is too great This condition or stage has been termed "chronic arterial hypertension" This condition may be due to irritants circulating in the blood, to nervous tension, to incipient chronic interstitial nephritis, or may be the first stage of sclerosis of the arteries If from any cause this hypertension persists, the muscular coats of the arteries will become more or less hypertrophied, and sooner or later degenerative changes begin in the intima, and finally fibrosis occurs in the external coat of the arteries, in other words, arteriosclerosis is in evidence If the patient lives with this arteriosclerosis, a later stage of the arterial disease may occur which has been termed atheroma, with thickening, and possibly calcareous deposits in some parts of the walls of the vessels, while in other parts the coats become thinner and insufficient At this stage the heart, which has already shown some trouble, becomes unable to force the blood properly against this enormous resistance of inelastic vessels and the blood pressure begins to fail as the left ventricle weakens Edema, failing heart, perhaps aneurysms, peripheral obstruction, or hemorrhages are the final conditions in this chronic disease of arteriosclerosis

Riesman[50] divides hypertension into four classes hypertension without apparent nephritis or arterial disease, hypertension with arteriosclerosis, hypertension with nephritis, and hypertension with both arteriosclerosis and nephritis These classes are given here in the order of the seriousness of the prognosis

ETIOLOGY

One of the most common causes of hypertension is due to excess of eating and drinking The products caused by maldigestion of proteins, and the toxins formed and absorbed especially from meat proteins, particularly when the excretions are insufficient, are the most frequent causes of hypertension Whatever other element or condition may have caused increased blood pressure, the first step toward improving and lowering this pressure is to diminish the amount of meat eaten or to remove it entirely from the diet In pregnancy where there is increased metabolic change, when the proteins are not well or properly cared for in gout, and when there is intestinal fermentation or putrefaction, hypertension is likely to occur The increased blood pressure in these cases is directly due to irritation of the toxins on the blood vessel walls

While alcohol does not tend to raise arterial blood pressure, in large amounts it may raise the venous pressure Also, by causing an abundant appetite and thus increasing the amount of food taken, by interfering with the activity of the liver, and by impairing the intestinal digestion, it can indirectly disturb the metabolism and cause enough toxin to be produced to raise the blood pressure

Any drug or substance that raises the blood pressure by stimulating the vasomotor center or the arterioles, when constantly repeated, will be a cause of hypertension This is particularly true of caffein and nicotin Also, anything that might stimulate, or that does stimulate, the suprarenal glands will cause a continued high blood pressure It is quite probable that in many cases of gout the suprarenals are hypersecreting and it has been shown by Cannon, Aub and Binger[51] that nicotin in small doses increases the suprarenal secretion Therefore, nicotin becomes a decided cause of hypertension and arteriosclerosis

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[47] Hewlett A W and Zwaluwenburg J G Van The Pulse Flow in the Brachial Artery Arch Int Med July 1913 p 1

[48] Fairlee Lancet London Feb 28 1914

[49] Capps J A and Matthews S A Venous Blood Pressure as Influenced by the Drugs Employed in Cardiovascular Therapy THE JOURNAL A M A Aug 9 1913 p 388

[50] Riesman Pennsylvania Med Jour December 1914 p 193

Thayer found that heavy work is the cause of about two thirds of all cases of arteriosclerosis, and one of the functions of the suprarenals is to destroy the waste products of muscular activity, hence these glands, in these cases, are hypersecreting Furthermore, the reason that many infections are followed later by arteriosclerosis may be the fact that the suprarenals have been stimulated to hypertrophy and hypersecrete

Many persons in middle life, and especially women at the time of the menopause, show hypertension without arterial or kidney reason At this time of life the thyroid is disturbed, and often, especially if weight is added, it is not secreting sufficiently Whether, with the polyglandular disturbance of the menopause the suprarenals are excited and hypersecreting, or whether they are simply relatively secreting more vasopressor substance than is combated by the vasodilator substance from the thyroid, cannot be determined These women are energetic, and look full of health and full of strength, but their faces frequently flush, sometimes they are dizzy, and the systolic blood pressure is too high Reisman has pointed out that these patients are likely to have very large breasts, and there is reason to believe that we must begin to study more carefully the effect of large breasts on the metabolism of girls and women There certainly is an internal secretion of some importance furnished by these glands

In hyperthyroidism at first the blood pressure may be lowered on account of the increased physiologic secretion of the thyroid gland Later the blood pressure may be raised by stimulation of the suprarenals, or it may become raised from the irritated and stimulated heart becoming hypertrophied If the heart is normal the ventricles should hypertrophy with the increased work that they are under, and the blood pressure could increase for this reason Later in exophthalmic goiter the heart muscle may become degenerated, a chronic myocarditis, and the ventricles may slightly dilate At this time the blood pressure is lowered When such a condition has occurred, the heart bears thyroidectomy badly, hence an operation on this gland should, if possible, be performed before the heart muscle has become injured If the heart shows signs of loss of power, minor operations to cut off the blood supply of the thyroid should first be done, and the patient s heart allowed to improve before a thyroidectomy is performed

Men with hypertension without kidney or arterial excuse are likely to have been athletes, or to have done some severe competitive work, or, as above stated, to have labored hard, or to have worked at high tension, or in great excitement, or with mental worry, all of which tend, as long as there is health, to increase the blood pressure These men may add weight from the age of 40 on, or they may be thin and wiry Besides the hypertension there is likely to be a too sturdily acting heart, which is often hypertrophied, and there is an accentuated closure of the aortic valve There may be dizziness, or no head symptoms at all Nicotin is likely to be an etiologic factor in this class

These women and these men may all be improved by proper treatment, and the condition may not develop into arteriosclerosis or nephritis

Neurotic conditions, and in some instances neurasthenic conditions, may show a blood pressure higher than normal Lead may be a cause of increased blood pressure, and diabetics occasionally have a high pressure, although more frequently there is a lowering of blood pressure in diabetes

Riesman believes that syphilis is the most common cause of hypertension and arteriosclerosis without renal disease When arteriosclerosis and renal disease are combined, of course the highest systolic readings occur He thinks that when high tension occurs under 40 years of age, kidney disease is generally the cause Of course it may be the only cause later in life

High blood pressure due to syphilitic conditions may be greatly improved by the proper treatment, although some one or more blood vessels are likely to have been seriously damaged Although these patients may live for many years, they are likely to have an apoplexy, cerebral disease or an aneurysm

While hypertension is not a disease, and while it often should not be combated, still, as it is always the forerunner of more serious trouble, there can be no excuse for not most seriously considering it and generally attempting its reduction At the moment high tension is discovered, there may be no special symptoms, but troublesome symptoms are always pending, and while the patient need not be unduly alarmed, there is no excuse for not rearranging the individual's life so as to prolong it This is not to state that every high tension must be lowered, but every hypertension must be studied and a safer systolic pressure caused if it is possible without interfering with the person's efficiency A high diastolic pressure, one above 105, certainly must receive immediate attention, and a diastolic pressure of 110 must be lowered, if possible On the other hand, a high systolic pressure without a high diastolic pressure should not be rapidly lowered, else depression will be caused

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies"

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council

W A Puckner, Secretary

ARBUTIN-ABBOTT—A non-proprietary brand complying with the standards for arbutin(see N N R, 1916, p 40)

Manufactured by the Abbott Laboratories, Chicago

AMPULS MERCURY IODIDE RED, 1 PER CENT IN OIL-SQUIBB

This dosage form of mercuric iodide, U S P, has been accepted

Each ampule contains 1 Cc of a solution of red mercuric iodide and anesthesin, each 0 01 Gm (1/6 grain) in a neutral fatty oil Prepared by E R Squibb & Sons, New York

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[51] Cannon, Aub and Binger Jour Pharmacol and Exper Therap, March, 1912

MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1916 BY THE COUNCIL ON MEDICAL EDUCATION

The tabulated statistics herewith presented are for the year ending June 30, 1916, and are based on reports received from the medical colleges or from other reliable sources We take pleasure in acknowledging here the courtesy and cooperation of the officers of the colleges who have made the compilation of these complete statistics possible

STATISTICS OF COLLEGES

Table 1 (pages 588-590) gives the colleges in session during 1915-1916, the population of the city, the rating given to the college in the latest classification of the Council on Medical Education, the number of students, men and women, registered during the year, the number of 1916 graduates, men and women, the number of graduates holding collegiate degrees, the number of teachers for each college, the number of weeks of actual work in the college year, the total fees for each year, the executive officer of the college, and the dates of beginning and ending of the next session The figures in heavy-faced type show the totals by states Beginning on page 609 are given essential facts concerning all medical colleges arranged by states

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 592-593, shows from what states the students came who were in attendance at each medical college during the session of 1915-1916 The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges This is shown by the dark zone of figures running diagonally down the page A comparison of this table with the large tables based on state board examinations,[1] which show the distribution of the alumni of each college, is interesting The college which has widely distributed alumni usually has a student body from an equally large number of states

The state furnishing the largest number of students this year was New York, with 2,030 Illinois contributed 1,177 and Pennsylvania, 1,099 The next states in the order of the number of students contributed, are Ohio 683, Massachusetts, 601, Missouri, 510, Texas, 489, North Carolina, 420, and Michigan, 416 Four states had less than 20 each, these being Arizona, 12, New Mexico, 11, Wyoming, 6, and Nevada, 3 There were 95 students from Hawaii, Porto Rico and the Philippine Islands, and 400 students from foreign countries

In Table 3, on page 596, the students enrolled in each college are shown by classes This permits one to see whether the attendance at each college is increasing or decreasing The total attendance for the first year was 3,582 as compared with 3,373 freshmen last year The second year attendance was 3,094 as compared with 3,919 last year The enrolments for the third and fourth years, respectively, were 3,559 and 3,727 as compared with 3,675 and 3,864 last year The freshman class enrolment is the only one, therefore, which shows an increase over that of last year

MEDICAL SCHOOL ENROLMENT FOR TWELVE YEARS

Table 4 has been added this year to show the enrolments of medical students for the last twelve years in the medical schools still existing This is interesting since it shows the effect of the higher entrance standards The care with which the higher requirement was enforced is suggested by the fact that in some the falling off was very marked while in others there was scarcely any change It is noteworthy that within a few years after the beginning of the higher requirement almost invariably the enrolments are again increased It is quite probable that the total enrolment of students in all medical colleges has reached its lowest point and that within a year or two there will be an increase

NUMBER OF MEDICAL STUDENTS

The total number of medical students (matriculants) in the United States for the year ending June 30, 1916, excluding premedical, special and postgraduate students, was 14,022, a decrease of 869 below last year, a decrease of 2,480 below 1914 and a decrease of 3,003 below 1913, and a decrease of 14,120 (50 2 per cent) below 1904, when 28,142, the highest number of students, were enrolled (See Table 4) Of the total number of students, 13,121 were in attendance at the nonsectarian (regular) colleges, 638 at the homeopathic and 263 at the eclectic colleges The attendance

TABLE 5 —Medical College Attendance

Year	Nonsectarian	Homeopathic	Eclectic	Physio Med	Nondescript	Total
1880	9 776	1 220	830			11 826
1890	13 521	1 164	719			15 404
1900	22 710	1 909	522			25 171
1901	23 846	1 683	664	80	144	26 417
1902	24,878	1,617	765	91	150	27,501
1903	24 930	1 498	848	149	190	27 615
1904	23 662	1 309	1 014	123	234	28 142
1905	24 119	1 104	578	114	232	26 147
1906	23 116	1 085	644	110	249	25 204
1907	22 303	1 039	545	97	292	24 276
1908	20 936	891	479	90	206	22 602
1909	20 554	899	413	52	227	22 145
1910	20 136	867	455	49	19	21 526
1911	18 414	890	433	49		19 786
1912	17 277	827	308			18 412
1913	15 919	850	246			17 015
1914	15 438	794	270			16 502
1915	13 914	736	241			14,891
1916	13 121	638	263			14 022

(Continued on page 591)

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[1] The Journal State Board Number April 8 1916 Table A pages 1196 to 1199 inclusive

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1915)	Classification by Council on Medical Education	No of Students Registered 1915 16		Graduates 1916		Grads with A B, B S or Ph B	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1916 17		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1916	Ends 1917	
	ALABAMA			56		18		6										
1	University of Alabama School of Medicine, Mobile	56 536	A	56		18		6	42	32	160	155	155	175	T H Fraser M D, Dean	Oct 5	June 5	1
	ARKANSAS			55	1	15	1											
2	University of Arkansas Medical Department, Little Rock	55,158	B	55	1	15	1		62	33	125	125	125	150	Morgan Smith M D, Dean	Sept 18	May 31	2
	CALIFORNIA			458	75	92	17	53										
3	College of Medical Evangelists, Loma Linda	125	C	42	9	6	3		55	35	141	136	136	146	Newton Evans, M D Dean	Sept 11	May 31	3
4	College of Physicians and Surgeons, Los Angeles	465 367	B	132	11	21	2	5	96	36	220	217	202	227	Charles W Bryson M D Dean	Sept 5	June 7	4
5	Oakland College of Medicine and Surgery, Oakland	190 803	B	10	3	2		1	40	33	195	190	150	150	Edward N Ewer M D Registrar	Aug 21	June 1	5
6	College of Physicians and Surgeons of San Francisco	448 502	C	57	6	8	1	1	28	36	165	160	160	185	C O Southard M D Secretary	Sept 4	June 7	6
7	Hahnemann Medical College of the Pacific, San Francisco —H [1]	448 502	B	35	8	10	3		47	36			105	130	James W Ward M D Dean	Aug 16	May 17	7
8	Leland Stanford Junior University School of Med San Francisco	448 502	A	77	19	21	3	23	98	34	160	155	150	150	Wm Ophuls M D Dean	Aug 30	May 16	8
9	University of California Medical School San Francisco	448 502	A	105	19	24	5	23	104	36	190	175	160	160	L S Schmitt, M D Secretary	Aug 19	May 16	9
	COLORADO			75	4	13		8										
10	University of Colorado School of Medicine Denver	253 161	A	75	4	13		8	86	35	85	85	75	75	Charles N Meader, M D, Dean	Sept 11	June 6	10
	CONNECTICUT			58		6		6										
11	Yale University School of Medicine New Haven	147,095	A	58		6		6	76	35	200	170	153	163	George Blumer M D, Dean	Sept 28	June 20	11
	DISTRICT OF COLUMBIA			286	8	48	1	12										
12	Georgetown University School of Medicine, Washington	358,679	A	53		7		3	91	34	105	150	150	160	George M Kober M D, Dean	Sept 24	June 13	12
13	George Washington University Medical School, Washington	358,679	A	134	7	26	1	2	85	33	168	169	163	163	W C Borden, M D, Dean	Sept 27	June 6	13
14	Howard University School of Medicine, Washington	358 679	A	99	1	15		7	39	32	137	127	127	134	Edward A Balloch M D Dean	Oct 2	June 6	14
	GEORGIA			315		140		5										
15	Atlanta Medical College Atlanta	184 873	A	232		101		5	101	32	172	160	155	180	W S Elkin, M D, Dean	Sept 25	May 29	15
16	Georgia College of Eclectic Medicine and Surgery Atlanta —E [2]	184 873	C	29		29												16
17	University of Georgia Medical Department, Augusta	49,848	A	54		10			49	34	155	150	150	150	William H Doughty, Jr, M D, Dean	Sept 13	May 30	17
	ILLINOIS			1875	115	602	25	118										
18	Chicago College of Medicine and Surgery, Chicago	2 447 045	B	466	22	190	4	4	167	32	155	155	155	155	G F Wyneken, M D, Secretary	Sept 26	May 27	18
19	Chicago Hospital College of Medicine, Chicago [3]	2,447 045	C	60		9												19
20	Hahnemann Medical College and Hospital of Chicago —H	2 447 045	B	77	8	16	2	1	73	33	171	161	176	191	Joseph P Cobb M D, Dean	Sept 25	June 7	20
21	Jenner Medical College Chicago [4]	2,447 045	C	88	10	14	1											21
22	Loyola University School of Medicine, Chicago [5]	2,447 045	B	294	14	136	6	4	88	34	140	140	140	140	Alfred de Roulet M D, Secretary	Sept 25	June 18	22
23	Northwestern University Medical School Chicago	2,447,045	A	236		42		19	124	32	190	195	190	206	Arthur R Edwards M D, Dean	Oct 3	June 2	23
24	Rush Medical College (University of Chicago)	2,447 045	A	450	38	92	5	84	301	34	185	180	180	195	John M Dodson, M D Dean	Oct 2	June 13	24
25	University of Illinois College of Medicine Chicago	2,447 045	A	204	23	103	7	6	145	34	155	160	150	165	William H Browne, Secretary	Sept 28	June 13	25
	INDIANA			156		34		28										
26	Indiana University School of Medicine Indianapolis	265 578	A	156		34		28	136	34	100	100	130	130	Charles P Emerson, M D, Dean	Sept 19	June 9	26
	IOWA			158	3	29		10										
27	State University of Iowa College of Medicine, Iowa City	10,987	A	149	2	29		10	54	33	85	85	85	85	Lee Wallace Dean, M D Dean	Sept 18	June 13	27
28	State University of Iowa College of Homeo Med, Iowa City —H	10,987	A	9	1				27	34	85	85	85	85	George Royal M D Dean	Sept 18	June 8	28
	KANSAS			99	6	10	1	9										
29	University of Kansas School of Medicine Rosedale	392,693	A	99	6	10	1	9	61	35	30	30	105	105	M T Sudler, M D, Asso Dean	Sept 13	June 6	29
	KENTUCKY			149		54		5										
30	University of Louisville Medical Department, Louisville	237,012	A	149		54		5	101	33	175	176	179	182	Henry E Tuley M D, Dean	Sept 26	June 7	30
	LOUISIANA			264	1	75		9										
31	Tulane University of Louisiana School of Medicine New Orleans	366,484	A	264	1	75		9	116	33	190	190	185	215	Isadore Dyer M D, Dean	Sept 27	June 6	31
	MAINE			60		10		6										
32	Bowdoin Medical School Brunswick Portland	63 011	A	60		10		6	61	33	115	115	115	115	Addison S Thayer M D, Dean	Oct 12	June 21	32

	MARYLAND			683	38	199	6	95										
33	Johns Hopkins University Medical Department Baltimore	584 605	A	315	38	76	6	82	156	33	240	200	200	200	J Whitridge Williams M D Dean	Oct 2	June 12	33
34	Univ of Maryland Sch of Med & Coll of Phys & Surgs Baltimore	584 605	A	368		123		13	201	32	170	165	165	195	J M H Rowland M D Dean	Oct 2	June 1	34
	MASSACHUSETTS			787	49	157	17	80										
35	Boston University School of Medicine Boston —H	745 139	A	63	12	12	6	4	62	32	170	157	161	160	John L Sutherland M D Dean	Oct 5	June 6	35
36	College of Physicians and Surgeons Boston[6]	745 139	C	13	4	11	1											36
37	Medical School of Harvard University Boston	745 139	A	331		74		72	230	30	225	225	225	225	J H Bradford M D Dean	Sept 25	June 21	37
38	Tufts College Medical School Boston	745 139	A	317	33	60	10	4	122	35	170	155	155	155	Charles F Painter M D Dean	Sept 21	June 15	38
	MICHIGAN			529	19	113	8	53										
39	University of Michigan Medical School Ann Arbor	14 984	A	306	18	57	7	50	93	35	113	92	107	67	Victor C Vaughan M D Dean	Oct 1	June 28	39
40	University of Michigan Homeo Medical School Ann Arbor —H	14 984	A	43	1	7	1	3	26	35	113	92	107	67	W B Hinsdale M D Dean	Oct 4	June 28	40
41	Detroit College of Medicine and Surgery Detroit	554 717	A	180		49			171	32	155	150	130	130	Joseph H Hathaway M D Secretary	Sept 25	May 31	41
	MINNESOTA			246	7	49	2	42										
42	University of Minnesota Medical School *Minneapolis*	353 400	A	246	7	49	2	42	147	34	150	150	150	150	Elias P Lyon M D, Dean	Sept 27	June 15	42
	MISSISSIPPI			55														
43	University of Mississippi Department of Medicine Oxford*	2 014	A	55					21	32	83	83			W S Leathers M D, Dean	Sept 20	May 29	43
	MISSOURI			655	19	130	5	22										
44	University of Missouri School of Medicine Columbia*	11 371	A	71	3				20	34	45	45			Guy L Noyes M D Dean	Sept 18	June 7	44
45	Kansas City College of Medicine and Surgery Kansas City —E[7]	386 793		98	10	11	1											45
46	Southwest School of Medicine and Hospital Kansas City —H[8]	386 793	C	18	2	6	2	1										46
47	National University of Arts and Sciences Med Dept, St Louis	745 988	C	145	4	52	2		61	34	140	135	135	135	J J Link M D President	Sept 20	June 10	47
48	St Louis University School of Medicine St Louis	745 988	A	231		44		4	131	32	165	155	155	165	Hanau W Loeb M D Dean	Oct 2	June 1	48
49	Washington University Medical School St Louis	745 988	A	92		17		17	94	34	165	150	150	165	P A Shaffer M D, Dean	Sept 28	June 14	49
	NEBRASKA			268	8	68	3	20										
50	Lincoln Medical College, Lincoln —E[9]	46 028	C	23	2	7	2											50
51	John A Creighton Medical College Omaha	135 455	B	127	1	41		3	53	33	140	135	135	145	B M Riley M D Secretary	Sept 22	June 2	51
52	University of Nebraska College of Medicine Omaha	135 455	A	118	5	20	1	19	59	34	135	130	120	120	Irving S Cutter M D Dean	Sept 18	June 9	52
	NEW HAMPSHIRE			33														
53	Dartmouth Medical School Hanover*	1 340	A	33					12	36	174	175			John M Gile M D Dean	Sept 21	June 20	53
	NEW YORK			2073	88	440	16	120										
54	Albany Medical College Albany	103 580	A	148		48		2	71	33	165	165	165	165	Thomas Ordway M D Dean	Sept 25	June 8	54
55	University of Buffalo Department of Medicine Buffalo	461 335	A	166	15	34	1		107	33	185	180	140	140	Thos H McKee M D Dean	Sept 25	June 8	55
56	Columbia University College of Phys and Surgs New York City	5 468 190	A	419		73		57	250	33	255	250	250	275	Samuel W Lambert M D Dean	Sept 27	June 6	56
57	Cornell University Medical College New York City	5 468 190	A	130	21	26	4	30	132	34	190	185	185	200	William M Polk M D Dean	Sept 27	June 4	57
58	Fordham University School of Medicine New York City	5 468 190	A	256		42		5	110	33	210	216	212	210	William P Healy M D Dean	Sept 29	June 11	58
59	Long Island College Hospital Brooklyn	881 065	A	272		84		2	127	32	210	205	200	200	Otto V Huffman M D Secretary	Sept 25	June 1	59
60	New York Homeopathic Medical College and Flower Hosp —H	5 468 190	B	177		63		6	81	33	195	185	175	195	Royal S Copeland M D Dean	Sept 26	June 7	60
61	New York Medical College and Hospital for Women —H	5 468 190	C		47		11		73	33	180	175	160	180	Cornelia C Brandt M D Dean	Sept 20	June 1	61
62	University and Bellevue Hospital Medical College New York City	5 468 190	A	395		46		4	180	34	205	200	200	225	Samuel A Brown M D Dean	Sept 20	June 6	62
63	Syracuse University College of Medicine Syracuse	152 534	A	110	5	24		14	80	36	175	175	175	175	John L Heffron M D Dean	Sept 19	June 13	63
	NORTH CAROLINA			145	1	8												
64	University of North Carolina School of Medicine Chapel Hill*	1 449	A	76	1				25	35	120	125			Isaac Hall Manning M D Dean	Sept 12	June 6	64
65	North Carolina Medical College Charlotte[10]	38 887	B	30		8												65
66	Leonard Medical School Raleigh*	19 833	B	5					5	29	30	30			George H Stoddard M D Dean	Sept 27	May 9	66
67	Wake Forest College School of Medicine Wake Forest*	1 443	A	34					13	35	103	103			E B Earnshaw Secretary	Sept 5	May 25	67
	NORTH DAKOTA			23														
68	Univ of North Dakota School of Med University (Grand Forks)*	14 827	A	23					18	35	50	50			Harley E French M D Dean	Sept 26	June 20	68
	OHIO			570	21	160	7	60										
69	Eclectic Medical College Cincinnati —E	406 706	B	93	8	23	5		45	32	125	120	120	120	John K Scudder M D Secretary	Sept 14	May 14	69
70	University of Cincinnati College of Medicine	406 706	A	79	9	21	1	9	141	34	150	150	150	170	Christian R Holmes, M D Dean	Oct 3	June 18	70
71	Western Reserve University School of Medicine Cleveland	656 975	A	178		49		49	96	34	162	155	150	155	F C Waite, Ph D Secretary	Sept 28	June 14	71
72	Ohio State University College of Medicine Columbus	209 722	A	182	3	60	1	2	98	36	150	160	150	155	Eugene F McCampbell M D Dean	Sept 19	June 23	72
73	Ohio State University College of Homeo Medicine Columbus —H	209 722	C	38	1	7			17	36	150	150	150	150	Claude A Burrett M D, Dean	Sept 19	June 23	73
	OKLAHOMA			74	1	20		3										
74	University of Oklahoma School of Medicine, Norman Oklahoma City	88 158	B	74	1	20		3	59	34	55	43	25	25	Leroy Long M D, Dean	Sept 19	June 5	74
	OREGON			78	3	16		2										
75	University of Oregon Department of Medicine Portland	272 833	A	78	3	16		2	60	33	155	150	150	150	K A J McKenzie, M D Dean	Oct 1	June 7	75

H —Homeopathic E —Eclectic

* Give only the first two years of the medical course

† Gives the first three years of the five year medical course

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(Concluded)

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1915)	Classification by Council on Medical Education	No of Students Registered 1915-16 Men	No of Students Registered 1915-16 Women	Graduates 1916 Men	Graduates 1916 Women	Grads with A B, B S or Ph B	Number of Teachers	Weeks in College Year	Total Fees (Dollars) 1st year	Total Fees (Dollars) 2d year	Total Fees (Dollars) 3d year	Total Fees (Dollars) 4th year	Executive Officer	Session of 1916 17 Begins 1916	Session of 1916 17 Ends 1917	Marginal Number
	PENNSYLVANIA			1404	67	372	19	93										
76	Hahnemann Medical College and Hospital of Philadelphia —H	1,683 664	A	98		20		5	89	32	180	180	180	180	Wm A Pearson, M D, Dean	Oct 1	May 31	76
77	Jefferson Medical College of Philadelphia	1,683 664	A	538		162		20	148	33	200	200	200	200	Ross V Patterson, M D, Dean	Sept 25	June 2	77
78	Medico Chirurgical College of Philadelphia[11]	1 683 664	A	306		83		4										78
79	Temple University Department of Medicine, Philadelphia	1 683 664	B	41	5	11	2	2	85	30	176	171	161	171	H T Williams, M D, Registrar	Oct 18	June 9	79
80	University of Pennsylvania School of Medicine, Philadelphia	1 683 664	A	317		74		50	179	35	233	210	210	214	William Pepper, M D, Dean	Sept 29	June 20	80
81	Woman's Medical College of Pennsylvania, Philadelphia	1,683 664	A		55		17	2	59	34	192	176	183	179	Clara Marshall, M D, Dean	Sept 20	June 6	81
82	University of Pittsburgh School of Medicine, Pittsburgh	571,984	A	104	7	22		10	108	34	265	250	250	255	Thomas S Arbuthnot, M D, Dean	Sept 25	June 13	82
	SOUTH CAROLINA			61		16		5										
83	Medical College of the State of South Carolina, Charleston	60 427	A	61		16		5	60	32	140	140	140	140	Robert Wilson, Jr, M D, Dean	Oct 2	June 7	83
	SOUTH DAKOTA			12														
84	University of South Dakota College of Medicine, Vermilion*	2,187	A	12					10	35	60	60			Christian P Lommen, B S, Dean	Sept 19	June 14	84
	TENNESSEE			711	9	262	4	39										
85	Lincoln Memorial University Medical Department, Knoxville[12]	38 300	B	21		14												85
86	University of Tennessee College of Medicine, Memphis	146 113	A	156	3	59	1	7	110	34	105	100	100	125	H T Brooks M D, Dean	Sept 21	June 6	86
87	University of West Tennessee College of Med and Surg, Memphis[13]	146 113	C	27		9		2	22	30	55	55	55	65	M V Lynk M D, Dean	Sept 14	May 3	87
88	Meharry Medical College, Nashville	115 978	B	295	6	90	3	9	25	30	70	70	70	80	George W Hubbard, M D, Dean	Sept 19	May 3	88
89	Vanderbilt University Medical Department, Nashville	115 978	A	212		90		21	84	33	165	160	160	185	Lucius E Burch, M D, Dean	Oct 2	June 13	89
	TEXAS			312	12	66	1	16										
90	Baylor University College of Medicine, Dallas	118 482	A	58	1	25		3	53	32	120	115	115	125	Edward H Cary, M D, Dean	Oct 2	May 31	90
91	Fort Worth School of Medicine, Fort Worth	94 494	B	50		7		2	73	34	114	113	108	125	Samuel A Woodward, M D, Dean	Sept 18	June 7	91
92	University of Texas Department of Medicine, Galveston	41 076	A	204	11	34	1	11	32	32	60	25	15	10	William S Carter, M D, Dean	Oct 1	May 31	92
	UTAH			23														
93	University of Utah School of Medicine, Salt Lake City*	113,567	A	23					22	34	74	79			Perry G Snow, M D, Dean	Sept 18	June 7	93
	VERMONT			76		13		1										
94	University of Vermont College of Medicine, Burlington	21,247	A	76		13		1	45	36	145	145	145	170	H C Tinkham, M D, Dean	Sept 27	June 27	94
	VIRGINIA			380		104		19										
95	Medical College of Virginia, Richmond	154,674	A	266		83		8	132	34	164	164	164	164	Stuart McGuire, M D, Dean	Sept 20	June 5	95
96	University of Virginia Department of Medicine, Charlottesville	6,765	A	114		21		11	25	36	150	140	140	140	Theodore Hough, M D, Dean	Sept 14	June 13	96
	WEST VIRGINIA			17														
97	West Virginia University School of Medicine, Morgantown*	12,239	B	17					11	35	33	10			John N Simpson, M D, Dean	Sept 18	June 13	97
	WISCONSIN			177	11	45	1	3										
98	University of Wisconsin Medical School, Madison*	30 084	A	91	10				20	36	70	70			Charles R Bardeen, M D Dean	Sept 18	June 20	98
99	Marquette University School of Medicine, Milwaukee	428 062	A	86	1	45	1	3	105	36	175	170	170	195	J Van de Erve, M D, Asso Dean	Sept 18	June 14	99
	CANADA			1567	47	202	4	39										
100	University of Alberta Faculty of Medicine, Edmonton, Alta †	60 000		39	3				15	30	60	85	85		Cecil E Race, A B, Registrar	Oct 2	May 16	100
101	Dalhousie University Faculty of Medicine, Halifax, N S	46 619	B	62	6	11	1		38	32	110	110	110	110	D Fraser Harris, M D, Secretary	Sept 13	May 10	101
102	Queen's University Feculty of Medicine Kingston, Ont	18,874	C	204		11		4	39	30	105	105	105	105	J C Connell, M D, Dean	Sept 13	April 25	102
103	University of Toronto Faculty of Medicine Toronto, Ont	376 538	A	491	36	90	3	13	185	32	150	150	150	150	A Primrose, M D, Dean	Sept 26	May 26	103
104	Western University Faculty of Medicine, London Ont	46 300	C	68		16		3	59	30	120	115	115	115	Paul C McKibben, Secretary	Oct 2	May 18	104
105	McGill University Faculty of Medicine, Montreal, Que	473 712	A	317		28		6	131	32	174	174	181	174	John W Scane, M D, Registrar	Oct 1	June 6	105
106	Montreal School of Medicine and Surgery, Montreal, Que	473 712	B	173		17			75	36	110	118	126	138	L D Mignault, Registrar	Oct 1	June 30	106
107	Laval University Faculty of Medicine, Quebec Que	78,190	B	81		10		8	24	34	60	60	60	60	Edwin Turcot M D, Dean	Sept 12	June 1	107
108	University of Manitoba, Manitoba Medical College Winnipeg	200,000	B	132	2	19		5	58	28	155	150	150	150	H H Chown, M D, Dean	Sept 27	May 1	103

H —Homeopathic E —Eclectic * Give only the first two years of the medical course † Gives the first three years of the five year medical course

1 Has merged with the University of California Medical School, but is continuing until the three remaining classes have been graduated
2 This college is reported to have been closed and its building has been leased for other purposes
3 No reports obtained Figures are for session of 1914 1915 It is not known whether the college will reopen Official reports show this college is not recognized by the licensing boards of thirty two states
4 A night school advertising as an "accredited" institution Official reports show it is not recognized by the licensing boards of thirty two states
5 Heretofore known as the Bennett Medical College
6 Official reports show this college is not recognized by the licensing boards of thirty three states
7 This is an offshoot from the Eclectic Medical University and apparently took all the students, since neither students nor graduates are reported for the latter
8 This is the successor to the Kansas City Hahnemann Medical College and occupies the same building It has not been learned whether the school will reopen It is reported as not in good standing with the Missouri State Board of Health
9 It has not been learned whether this college will reopen Reported not recognized by the licensing boards of twenty nine states
10 Merged in 1914 with the Medical College of Virginia but retains a nominal existence until 1917, when its last class will graduate
11 Has been merged with the University of Pennsylvania Medical School Will hereafter be known as the "Medico Chirurgical College and Hospital, Graduate School of Medicine of the University of Pennsylvania"
12 Merged in 1914 with the University of Tennessee College of Medicine but retains a nominal existence until 1917, when its last class will graduate
13 A school for the colored race It has been reported as not recognized by the licensing boards of thirty four states

(Continued from page 587)

at the nonsectarian colleges shows a decrease of 793 below that of last year, a decrease of 2,317 below 1914, and a decrease of 11,809 (47 4 per cent) below 1903, when 24,930, the largest number of nonsectarian students, were enrolled In the homeopathic colleges there was a decrease of 98 below the attendance of last year, a decrease of 156 below 1914 and a decrease of 1,271 (66 6 per cent) below 1900, when 1,909, the largest number of homeopathic students, were enrolled The eclectic colleges show an increase of 22 over the registration of last year, a decrease of 7 below 1914, and a decrease of 751 (74 1 per cent) below 1904, when 1,014, the largest number of eclectic students, were enrolled

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ending June 30, 1916, was 3,518, a decrease of only 18 below 1915, a decrease of 76 below 1914, and a decrease of 463 below 1913 The total this year is 2,229 (38 8 per cent) less than in 1904, when 5,747, the largest number, were graduated

TABLE 6 — MEDICAL COLLEGE GRADUATES

Year	Non sectarian	Homeo pathic	Eclectic	Physio Med	Nonde script	Total
1880	2 673	380	188			3 241
1890	3 853	380	221			4 454
1900	4 715	413	86			5 214
1901	4 879	387	148	18	12	5 444
1902	4 508	326	138	16	11	5 009
1903	5 088	420	149	24	17	5 698
1904	5 190	371	146	20	20	5 747
1905	5 126	276	153	22	23	5 600
1906	4 841	286	186	22	29	5 364
1907	4 591	225	121	11	32	4 980
1908	4 370	215	116	12	28	4 741
1909	4 163	209	84	15	44	4 515
1910	4 113	183	114	16	14	4 440
1911	4 006	152	110	5		4 273
1912	4 206	185	92			4 483
1913	3 679	209	93			3 981
1914	3 370	154	70			3 594
1915	3 286	195	55			3 536
1916	3 274	166	78			3 518

The number of graduates from the nonsectarian colleges was 3,274, or 12 less than last year, 96 less than in 1914, and 405 less than in 1913 It is a decrease of 1,916 (36 9 per cent) below 1904, when 5,190, the largest number, were graduated from nonsectarian colleges From the homeopathic colleges there were 166 graduates, or 29 less than in 1915, and 43 less than in 1913 It is a decrease of 254 (60 5 per cent) below 1903, when 420, the largest number of homeopathic physicians, were graduated The eclectic colleges graduated 78, or 23 more than last year It is a decrease of 143 (65 per cent) below 1890, when 221, the largest number of eclectic physicians, were graduated

GRADUATES HOLDING DEGREES IN ARTS

Of the 3,518 medical graduates, 948, or 26 9 per cent, were reported to hold also degrees in arts or science This total includes those taking the combined courses in arts or science and medicine Last year 24 3 per cent held these degrees, 22 5 in 1914, and 15 3 per cent in 1910 Of the 3,274 nonsectarian school graduates, 928, or 28 3 per cent, were reported to have baccalaureate degrees, while of the homeopathic graduates, 20, or 12 per cent, were so reported, and of the eclectic graduates, not one was reported as holding degrees from colleges of liberal arts As will be noted by referring to Table 14, of the 948 graduates holding baccalaureate degrees, 120 — the largest number — came from the New York colleges Heretofore the Illinois colleges have furnished the largest number Illinois comes second with 118, followed by 95 from Maryland, 93 from Pennsylvania, and 80 from Massachusetts The percentage of graduates holding collegiate degrees is gradually increasing and will continue to increase, particularly in the nonsectarian colleges, because so many of them are now requiring two years of college work for admission, which bring the students nearer to the requirements for the combined course for the B S and M D degrees

TABLE 7 — MEDICAL GRADUATES WITH LIBERAL ARTS DEGREES

Year	Non sectarian			Homeopathic			Eclectic			Totals		
	Graduates	A B B S	Per cent	Graduates	A B B S	Per cent	Graduates	A B B S	Per cent	Graduates	A B, B S	Per cent
1910	4 113	664	16 1	183	13	7 1	114	3	2 6	4 440	680	15 3
1911	4 006	683	17 0	152	18	11 8	110	4	3 6	4 273	705	16 5
1912	4 206	744	17 7	185	15	8 1	92	4	4 3	4 483	763	17 0
1913	3 679	732	19 9	209	20	9 6	93	1	1 1	3 981	753	18 9
1914	3 370	794	23 5	154	7	4 5	70	6	8 6	3 594	807	22 5
1915	3 286	839	25 5	195	16	8 2	55	3	5 5	3 536	858	24 3
1916	3 274	928	28 3	166	20	12 0	78	0	0 0	3 518	948	26 9

During the past year there were 566 women studying medicine, or 26 less than last year, 65 less than in 1914, and 563 (49 9 per cent) less than in 1904, when 1,129 women students, the largest number, were reported The percentage of all medical students remains approximately the same as it has been since 1904 There were 134 women graduates this year, 4 more than last year and 13 more than in 1914 Of all

TABLE 8 — WOMEN IN MEDICINE

Year	Total women students	Percentage of all students both sexes	Total women graduates	Percentage of graduates both sexes	Women s colleges	Students	Percentage of all women students	Graduates	Percentage of all women graduates	Co ed schools	Students	Percentage of all women students	Graduates	Percentage of all women graduates
1904	1 129	4 3	244	4 0	3	183	16 2	56	23 0	97	946	83 8	198	77 0
1905	1 073	4 1	219	4 0	3	221	20 6	54	24 5	96	852	79 4	165	75.5
1906	895	3 5	233	4 3	3	189	21 0	33	14 1	90	706	79 0	200	85 9
1907	928	3 8	211	4.2	3	210	22 6	39	18 5	86	718	77 4	172	81 5
1908	835	3 7	185	3 9	3	186	22 3	46	24 9	88	649	77 7	139	75 1
1909	921	4 2	162	3 7	3	169	18 4	33	20 3	91	752	81 6	129	79 7
1910	907	4 2	157	3 5	3	155	17 1	41	26 1	82	752	82 9	116	73 9
1911	680	3 4	159	3 7	2	134	19 7	36	22 6	74	546	80 3	123	77 4
1912	679	3 2	142	3 2	2	143	21 1	32	22 5	64	536	78 9	110	77 5
1913	640	3 8	154	3 8	2	138	21 6	33	21 4	55	502	78 6	121	78 6
1914	631	3.8	121	3 4	2	135	21 4	25	20 7	54	496	78 6	96	79 3
1915	592	4 0	130	3 7	2	116	19 6	38	29 2	53	462	80 4	92	70 8
1916	566	4 0	134	3.8	2	102	18 0	28	20 0	51	464	82 0	106	80 0

(Continued on page 594)

TABLE 2—DISTRIBUTION OF

Marginal Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Marginal Number
		210	12	97	342	107	208	24	91	83	325	33	1,177	305	341	226	158	172	97	215	601	
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist of Col	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	
1	University of Alabama School of Medicine Mobile	51																2				1
2	University of Arkansas Medical Dept, Little Rock	1		39												2	2	4				2
3	College of Medical Evangelists, Loma Linda		2		12					1				2	1							3
4	College of Physicians and Surgeons, Los Angeles				29	5				1			12	2	7	3	2				3	4
5	Oakland College of Medicine and Surgery Oakland				13																	5
6	College of Physicians and Surgeons, San Francisco		1		28	1	1						2		1		1		1			6
7	Hahnemann Medical College of the Pacific —H *				14	1							3		1				1			7
8	Leland Stanford Junior University School of Med				77	3								1								8
9	Univ of California Medical School, San Francisco				108									1		1						9
10	Univ of Colorado School of Med Boulder Denver					62						1	2		2						1	10
11	Yale University School of Medicine, New Haven		1				38						4								2	11
12	Georgetown University School of Medicine						5		13						1					2	7	12
13	George Washington University Medical School				2		6		45	1	1		1	1			1			2	2	13
14	Howard University School of Medicine	1		2				1	14	3	2		3		1		3			5		14
15	Atlanta Medical College	51								11	140			1			1					15
16	Georgia College of Eclectic Med and Surg —E *										29											16
17	University of Georgia Medical Dept, Augusta									1	47										1	17
18	Chicago College of Medicine and Surgery, Chicago	2	2		1		2			4	5		214	19	18	5	7	2	2	1	5	18
19	Chicago Hospital College of Medicine, Chicago												60									19
20	Hahnemann Med College and Hosp of Chicago —H						1						30	12	9	5			1			20
21	Jenner Medical College, Chicago												98									21
22	Loyola University School of Medicine, Chicago	2		2	4	1	2				1		170	8	3	3	1		2		3	22
23	Northwestern University Medical School, Chicago			1	2	5				1		1	96	10	14	12	1					23
24	Rush Medical College (University of Chicago)	1	1	2	8	4						3	182	18	34	20	5	1			1	24
25	University of Illinois College of Medicine Chicago	2				1					1	11	107	5	17	6			1			25
26	Indiana University School of Medicine, Indianapolis	1												148			1					26
27	State Univ of Iowa College of Med, Iowa City				1	1	1			1		1	5		123	2	1	1				27
28	State Univ of Iowa Coll of Homeo Med —H														10							28
29	Univ of Kansas School of Med, Lawrence Rosedale															99						29
30	Univ of Louisville Medical Dept Louisville	3	1	2	1								13	23	2	1	61	1				30
31	Tulane University of Louisiana School of Medicine	27		12						10	7					2		119				31
32	Bowdoin Medical School, Brunswick Portland						1								1				42		8	32
33	Johns Hopkins University Medical Dept, Baltimore	9		1	9	2	7	2	3	1	14		8	7	5	1	5	2	1	65	13	33
34	Univ of Maryland School of Med & Coll of P & S	1	1	1	2		19	1	3	6	2		1	1					2	103	17	34
35	Boston University School of Medicine —H										1		1			1			3		39	35
36	College of Physicians and Surgeons, Boston*																				47	36
37	Medical School of Harvard University, Boston				7	9	8	1	2	2	5		7	6	6	2		1	11	2	138	37
38	Tufts College Medical School Boston	1					13				2		1			1			15		263	38
39	University of Michigan Medical School	1					1		2		5	2	12	10	4	5	4			1	2	39
40	University of Michigan Homeo Med School —H				1								1	3	3	1	1					40
41	Detroit College of Medicine and Surgery, Detroit										1		2	3		1						41
42	University of Minnesota Medical School				2							2	2	1	11					1		42
43	University of Mississippi Dept of Med, Oxford									1								1				43
44	University of Missouri School of Med, Columbia			1									2			1	1					44
45	Kansas City College of Med and Surg, —E																					45
46	National Univ of Arts & Sci Med Dept, St Louis	1		2							1	1	36		2	5	2					46
47	Southwest Coll of Med and Hosp, Kansas City —H																3					47
48	St Louis University School of Medicine	1		1	1	1						1	42	6	19	14		1			1	48
49	Washington University Medical School, St Louis			3									12			10						49
50	Lincoln Medical College, Lincoln —E															1						50
51	John A Creighton Medical College, Omaha		1										1		21	6						51
52	University of Nebraska College of Medicine, Omaha			1	1	1									14	3						52
53	Dartmouth Medical School Hanover						1						1						1		9	53
54	Albany Medical College, Albany						1														2	54
55	University of Buffalo Dept of Medicine, Buffalo				2											1					1	55
56	Columbia University College of Phys and Surgs	1				3	18				10	2	2	2	1	1	2			1	3	56
57	Cornell University Medical College, New York City						9		1												3	57
58	Fordham Univ School of Medicine, New York City						17													9		58
59	Long Island College Hospital Brooklyn						2														2	59
60	New York Homeo Med Coll and Flower Hosp —H				1		5												1			60
61	New York Med Coll and Hosp for Women —H																					61
62	Univ and Bellevue Hosp Med Coll, N Y City				1		12				1				1	1					1	62
63	Syracuse University College of Medicine, Syracuse																				1	63
64	Univ of N Carolina School of Med, Chapel Hill									1												64
65	North Carolina Medical College, Charlotte									1												65
66	Leonard Medical School, Raleigh																					66
67	Wake Forest College School of Med, Wake Forest																					67
68	University of North Dakota School of Medicine																				1	68
69	Eclectic Medical College, Cincinnati —E				2								5	2	1	1	9					69
70	University of Cincinnati College of Medicine				1									4			7					70
71	Western Reserve University School of Medicine					1				1		2	2	1	1		1					71
72	Ohio State University College of Medicine Columbus																2					72
73	Ohio State Univ Coll Homeo Med, Columbus —H													1								73
74	Univ of Okla Sch of Med, Norman Oklahoma City	3														3						74
75	University of Oregon Dept of Medicine, Portland											1										75
76	Hahnemann Med Coll and Hosp, Philadelphia —H						1	2	2												1	76
77	Jefferson Medical College of Philadelphia	4	1	1	6		14	7		3	3	3	5			2	1	1	4	4	7	77
78	Medico Chirurgical College of Philadelphia				1		4	4	1		1			2		1		1	2	2	3	78
79	Temple University Dept of Medicine, Philadelphia						1	1														79
80	University of Pennsylvania School of Medicine	2			4	1	1	4			2	1	6	2	3	1	1	1		5	3	80
81	Woman's Medical College of Pennsylvania			1			1								2					1	3	81
82	Univ of Pittsburgh School of Med, Pittsburgh																					82
83	Medical College of the State of South Carolina	1								3	2											83
84	University of South Dakota College of Medicine																					84
85	Lincoln Memorial Univ Med Dept, Knoxville									1							4					85
86	University of Tennessee Coll of Med, Memphis	8		9		1				1			1				2	7				86
87	Univ of West Tenn Coll of Med & Surg, Memphis	3									3							2				87
88	Meharry Medical College Nashville	25		8					2	13	27		7			1	12	12		1	1	88
89	Vanderbilt University Medical Dept, Nashville	23		6	1	2				13	6		8		1		11	8				89
90	Baylor University College of Medicine, Dallas										1		1			1						90
91	Fort Worth School of Medicine Fort Wortht					1											1	2				91
92	University of Texas Dept of Medicine Galveston	1	1	2						1	1	1		1				2	1			92
93	Univ of Utah School of Medicine, Salt Lake City																					93
94	Univ of Vermont College of Medicine, Burlington						7												6		7	94
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

Marginal Number	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Marginal Number
	Michigan 410	Minnesota 335	Mississippi 181	Missouri 510	Montana 27	Nebraska 251	Nevada 3	New Hampshire 16	New Jersey 350	New Mexico 11	New York 2 030	North Carolina 350	North Dakota 34	Ohio 683	Oklahoma 130	Oregon 92	Pennsylvania 1 099	Rhode Island 64	South Carolina 161	South Dakota 51	Tennessee 238	Texas 489	Utah 80	Vermont 59	Virginia 334	Washington 110	West Virginia 141	Wisconsin 333	Wyoming 6	Philippines, etc. 95	Foreign 400	Totals 14 022	
1			3																													56	1
2			2						1		1				1		1					2										56	2
3	2	1		1		3			1	2					1						1	4				5		1	1		10	51	3
4	5	4		4	1	10					5		1	7		1	7			2		2	3	1				5		1	20	143	4
5																																13	5
6	1			1							4			2		2															17	63	6
7	3			2							2			2			2													1	11	43	7
8		2		1							1					1							3	1		3					3	96	8
9						1	2			1						1							2	1		2				1	3	124	9
10	1	1		1					1					2								1				1			1	1	1	79	10
11	1			1						1	7			1							1				1							58	11
12	1								2		7			2	1		6							1	1					2	2	53	12
13		1						1	3	1	14	1		2	2	1	7	2			4	1			11	1	3	3		8	10	141	13
14				2					4		2	11		1	1		6		7		2	10			10						9	100	14
15			6								1	12							10		4	4			4		1				6	232	15
16																																29	16
17											1	1							3													54	17
18	24	19	3	4	2	3			4		16	2	3	22	2		14			3	1		2	1	1		14	28		14	16	488	18
19																																60	19
20	3	3											1	7			1					1			1			5			5	85	20
21																																98	21
22	9	6	3	5		3					9			4	2		7		1	1	1	4		1	3	1	4	13		17	12	308	22
23	7	13	2	4	2	3				1	1		6	6	2	2	2			5	1	2	2			7		22			3	236	23
24	12	17		13	7	18				1	4		7	16	3	1	5		1	10	5	9	20		1	9		41		3	5	488	24
25	7	13		6							2			5	3		2			5			1			4		15		2	11	227	25
26		1					1		1					1								1									1	156	26
27		2		2							1									1						1					7	151	27
28																																10	28
29			4												1							1										105	29
30			2	2								2		2	4		6				2	3			2	2	9		1	2	2	149	30
31		1	19	5					1			4			1	1	1		3		1	36			1			1			13	265	31
32								3			2						1														2	60	32
33	5	3	1	8	1	2			12		23	9	5	24	1	4	35	2	7		5	4			29	4	5	3		2	4	353	33
34				1				3	14		29	36		5	1		28	4	11				3		13		25			19	16	368	34
35			1					1			4	1		1	1		3	1	1					2	1						13	75	35
36																																47	36
37	2	4		6				5	4	1	25	8		12	2		10	14	3	1		5	4	3		2	1	3		2	10	334	37
38	2							16			15			2			5	28						1							10	380	38
39	158	4		3		2		1	2		24	1		20	1	2	16			1	2		1	1		10	1	5		6	14	324	39
40	15	4						2			6			3	1	1	2															44	40
41	138	2									3			9			1										1	1			18	180	41
42		205		2	2	1							8							2	1		1			8		3			1	253	42
43			50																			1									2	55	43
44				66		1																1					1					74	44
45				108																												108	45
46			1	86		1						1			5						1	1					2				1	149	46
47				13		1									1													1			1	20	47
48	9	7		80		3					1			17	3	2				1	1	3				8		5			3	231	48
49				46		2					1	2								1		1	1		1			9			3	92	49
50			1			23																										25	50
51		8		5	8	66					1			1		1				2			1			4			1	1		128	51
52		2		2		90								1						1									2		5	123	52
53						1		10	4		3													1							2	33	53
54									3		140			1										1								148	54
55											172			1			4															181	55
56	4	1		3		1		1	38	1	284	4		2	2	2	8	1	1		1	2	4	1	4	2	1	1			4	419	56
57						2			9		109	1		1	1		6	2					1	2	2		1			1		151	57
58									15		207						5										1			1	1	256	58
59									12		246	1						1												1	7	272	59
60	1								30		131						3					1		1							3	177	60
61									11		36																					47	61
62	1			1		1			71		285	5		3	1			3			1	1	1	1			1				2	395	62
63				1					1		104						4					1									3	115	63
64									1			68							4						3							77	64
65												27							2													30	65
66											1	2							1												1	5	66
67												28							1						5							34	67
68		1										21																				23	68
69				1		6					3			58	1		2				1					1	8					101	69
70	1										1		1	66			4					1					2					88	70
71											2			138			10		1	2	1	1	6				5				3	178	71
72		1									2			170			4										5	1				185	72
73														34			3														1	39	73
74			1								1				65							1									1	75	74
75											1			1		64										14						81	75
76				1					11		1			4			68					1			1	1					4	98	76
77		5	4	4	2	4			40		23	38	1	12		4	263	4	9		1	2	5	1	4	5	7	3		3	28	538	77
78		2							27		13	2	1	2	1	1	212					1	2		2	1	2	1		2	12	306	78
79									2		5			1			28				1	1			1						5	46	79
80	1	1	1	2	1	1			18		11	23		1		1	171		2		4	2			5	12	1	8		4	10	317	80
81	1							1	3		10	3					23					1		1							4	55	81
82														3			105										3					111	82
83												2							53													61	83
84																	1			11												12	84
85												4									11				1							21	85
86			41	1								3		1	5						64	14			1							159	86
87			2								2	5			2				1		4				2		1					27	87
88			24	9					1		3	19			3		1		22		37	36			9						8	201	88
89	1	1	8	6						1	1	1		1	4				4		73	26			1	1		3			1	212	89
90											1			1	2							52										56	90
91															1							45										50	91
92			1							1		1			1						1	199										215	92
93																							23									23	93
94								2	2		11			1			1	2						37								76	94
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

TABLE 2—DISTRIBUTION OF

Marginal Number	NAME OF COLLEGE	1 210 Alabama	2 12 Arizona	3 97 Arkansas	4 342 California	5 107 Colorado	6 203 Connecticut	7 21 Delaware	8 91 Dist of Col	9 83 Florida	10 325 Georgia	11 33 Idaho	12 1 177 Illinois	13 305 Indiana	14 311 Iowa	15 226 Kansas	16 158 Kentucky	17 172 Louisiana	18 97 Maine	19 215 Maryland	20 601 Massachusetts	Marginal Number
95	Medical College of Virginia, Richmond						2			1	2									4		95
96	Univ of Virginia Dept of Medicine, Charlottesville	2					2	1	3		2			1			2	1		4		96
97	West Virginia Univ School of Med , Morgantown																					97
98	University of Wisconsin Medical School, Madison												5	1						2		98
99	Marquette University School of Medicine, Milwaukee					1							1		1							99
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H—Homeopathic, E—Eclectic * Exact distribution not given † Distribution based on that of 1914 15

(Continued from page 591)

the women matriculants, 102 (18 per cent) were in attendance at the two medical colleges for women, while the remaining 464 (82 per cent) were matriculated in the 51 coeducational colleges. From the two women's colleges there were 28 graduates, while 106 secured their degrees from coeducational colleges.

Since June 30, 1915, two new colleges were organized and two colleges (mentioned on page 599) were suspended or merged with others. The Hahnemann Medical College of the Pacific, which was omitted last year because of its merger with the University of California, is to continue as a teaching institution until 1918, when its last class will have graduated. There are now 95 medical colleges still existing. The number of colleges is the smallest since 1880, at which time began the rapid movement toward creating medical colleges, many of which were conducted for profit. The rapid increase in the number of colleges between 1880 and 1904 has been paralleled only by the rapid decrease since 1904. Ninety-four colleges have been closed by merger or otherwise since 1904, but in the same time twenty-seven new colleges were organized, leaving 95 medical colleges which still exist. The net reduction since 1906 has been 67 colleges, or 41.4 per cent.

TABLE 9—Medical Colleges

Year	Non sectarian	Homeo pathic	Eclectic	Physio Med	Nondescript	Total
1850	44	3	4	1		52
1860	53	6	4	2		65
1870	60	8	5	2		75
1880	76	14	8	2		100
1890	106	16	9	2		133
1900	126	22	9	2	1	160
1901	125	22	10	2	1	160
1902	126	20	9	3	2	160
1903	126	20	9	3	2	160
1904	127	19	9	3	2	160
1905	125	19	9	3	2	158
1906	130	19	8	3	2	162
1907	127	18	9	3	2	159
1908	120	18	9	2	2	151
1909	115	15	8	1	1	140
1910	109	12	8	1	1	131
1911	103	12	7			122
1912	101	11	6			118
1913	92	10	5			107
1914	87	10	5			102
1915	83	9	4			96
1916	82	10	3			95

FEWER BUT BETTER COLLEGES

Of the 94 medical colleges which have ceased to exist since 1904, 53 were closed by merger and 41 became extinct, 49 were rated by the Council on Medical Education in Classes A and B, and 45 in Class C. Note also that 44, or 95.5 per cent, of the closures of the medical colleges in Classes A and B were through merger with other colleges, while of the 45 Class C colleges which closed, only 9 (20 per cent) were through merger with other colleges. In other words, all but five of the colleges which became extinct had been rated in Class C by the Council on Medical Education.

TABLE 10—Colleges Closed Since 1904

Year	Class A*		Class B		Class C		Totals		Total Closed
	Mgd	Ext	Mgd	Ext	Mgd	Ext	Mgd	Ext	
1905	8	1					8	1	9
1906									
1907	3		3	1		3	6	4	10
1908	2		2		1	4	5	4	9
1909	3		2			7	5	7	12
1910	1		3		3	6	7	6	13
1911			3		1	3	4	3	7
1912	2					3	2	3	5
1913	3		6	1	1	3	10	4	14
1914					2	3	2	3	5
1915	1		1	2	1	3	3	5	8
1916	1					1	1	1	2
Totals	24	7	20	4	9	36	53	41	94

* Based on the classifications of medical colleges prepared by the Council on Medical Education

While the total number of colleges is growing smaller, the number of high-grade, stronger medical colleges is constantly increasing. In 1904, only 4, or 2.5 per cent of all medical colleges, were requiring any preliminary education in advance of the usual high school education, now 84[2] (88.4 per cent) are requiring one or more years of advance college work. Of these 84 colleges there are 46 which are requiring two years or more of collegiate work for admission and 15 others have adopted the higher requirement to go into effect in the next one or two years. In 1904 very little was known about the practice of colleges in the administration of entrance standards, as at that time no systematic check was kept on the methods used, now, through the Students' Register which, with the splendid cooperation of medical school officers, was started in 1910, the standards actually enforced by each college are known, faulty methods or "paper standards" are discovered and corrected or exposed, and instead of being

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[2] See list on page 605

Marginal Number	21 Michigan 416	22 Minnesota 31[illegible]	23 Mississippi 181	24 Missouri [illegible]10	25 Montana 25	26 Nebraska 251	27 Nevada 3	28 New Hampshire 16	29 New Jersey 3[illegible]0	30 New Mexico 11	31 New York 2 035	32 North Carolina 4[illegible]0	33 North Dakota 31	34 Ohio 683	35 Oklahoma 130	36 Oregon 92
95			1						1		5	62		4		
96			8								3	9			1	
97																
98	1	1		1	1	2					1					
99		2														
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

Marginal Number	37 Pennsylvania 1 050	38 Rhode Island 64	39 South Carolina 161	40 South Dakota 51	41 Tennessee 238	42 Texas 489	43 Utah 86	44 Vermont 59	45 Virginia 334	46 Washington 110	47 West Virginia 141	48 Wisconsin 333	49 Wyoming 6	50 Philippines, etc. 95	51 Foreign 400	52 Totals 14 022	Marginal Number
95	2		6			1			153		14				8	266	95
96	2		7		3	2			60		4	1			1	114	96
97											17					17	97
98				2	2					1	1	79			1	101	98
99	1					1						72		1		87	99
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

an unknown quantity, preliminary requirements are now known with fair accuracy.

FURTHER MERGERS NEEDED

During the year a noteworthy event was the merging of the Medico-Chirurgical College of Philadelphia with the University of Pennsylvania School of Medicine as its Graduate School of Medicine. This is an important step toward the desired end of having the abundance of clinical material of Philadelphia organized under a centralized control whereby it may be best utilized.

There are still sixteen cities each of which has two or more medical schools, and in two of these mergers are scarcely possible, owing to the fact that the schools are for different races, leaving fourteen cities where mergers are still possible. These cities and the number of colleges in each are as follows: Chicago, 8; New York, 7; Philadelphia, 5; Boston, 4; San Francisco, 3; St. Louis, 3; Washington, 3, and there are 2 colleges each in Ann Arbor, Baltimore, Cincinnati, Columbus, Iowa City, Los Angeles and Omaha. In 1904 there were 24 cities having each from 2 to 14 medical schools. The highest development of medical education in these cities is prevented by the existence of too many competing medical schools. For the further improvement not only of undergraduate, but also of graduate medical instruction in this country, there should be other mergers in the fourteen cities which have been named.

TABLE 11.—Cities Having Two or More Medical Colleges

City	A	B	C	Total
Chicago	3	3	2	8
New York	5	1	1	7
Philadelphia	4	1		5
Boston	3		1	4
San Francisco	2		1	3
St. Louis	2		1	3
Washington	3*			3
Ann Arbor	2			2
Baltimore	2			2
Cincinnati	1	1		2
Columbus	1		1	2
Iowa City	2			2
Los Angeles		1	1	2
Memphis	1		1*	2
Nashville	1	1		2
Omaha	1	1		2

* One school for the colored race.

LENGTH OF TERMS

The length of terms of each college fluctuates somewhat from year to year, but on the whole, during the last thirteen years there has been a decided lengthening of college terms. This has reference to the weeks of actual work exclusive of holidays. No colleges this year reported sessions shorter than 29 weeks and only 4 reported sessions of 29 and 30 weeks, two of these being colleges for colored students. Sessions of from 33 to 36 weeks were reported by 71, or 74.7 per cent of all colleges. It should be noted that the great progress has been since the agitation for longer terms and standards in medical education was begun by the Council on Medical Education in 1904.

TABLE 12.—College Terms

Year	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	28	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911			6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
1912	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.[illegible]	1	0.9
1913			3	2.8	5	4.7	29	27.4	41	38.7	27	25.5	1	0.9
1914			2	2.0	4	4.0	25	24.8	41	40.5	28	27.7	1	1.0
1915			1	1.0	5	5.3	22	23.2	36	37.9	30	31.6	1	1.0
1916*					4	4.2	17	17.9	43	45.3	28	29.5		

* Information not obtained from three Class C colleges.

TUITION AND OTHER FEES

Attention is called in Table 1, on page 588, to the amounts charged by the various medical colleges per annum for tuition, matriculation, laboratory and graduation fees for each student. In Table 13, 93 of the 95 remaining colleges—from two the figures were not obtained—have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B and C. Nineteen colleges charge fees of $100 or less per year, fifty-three between $100 and $175, and twenty-one charge above $175. Of the nineteen colleges charging $100 or less, thirteen, or more than

(Continue on page 598)

TABLE 3—MEDICAL STUDENTS SHOWN BY CLASSES

Name of College	Enrolled During 1915 16				
	1st Yr	2d Yr	3d Yr	4th Yr	Total
University of Alabama School of Medicine	6	9	23	18	56
Univ of Arkansas Medical Dept , Little Rock	7	17	13	19	56
College of Medical Evangelists, Loma Linda	4	26	9	12	51
College of Phys and Surgs , Los Angeles	47	23	49	24	143
Oakland College of Med and Surg , Oakland	4	2	5	2	13
College of Phys and Surgs San Francisco	10	30	10	13	63
Hahnemann Med Coll of the Pacific —H		7	20	16	43
Leland Stanford Junior Univ School of Med	20	23	26	27	96
University of California Medical School	38	28	29	29	124
University of Colorado School of Medicine	31	13	22	13	79
Yale University School of Med , New Haven	25	16	11	6	58
Georgetown University School of Medicine	10	19	11	13	53
George Washington University Medical School	32	20	48	41	141
Howard University School of Medicine	27	33	18	22	100
Atlanta Medical College, Atlanta	34	32	58	108	232
Georgia Coll of Eclectic Med and Surg —E				29	29
University of Georgia Medical Department	20	11	13	10	54
Chicago College of Medicine and Surgery	45	80	142	221	488
Chicago Hospital College of Medicine*					60
Hahnemann Medical College and Hospital, Chicago —H	18	16	33	18	85
Jenner Medical College, Chicago	2	52	21	23	98
Loyola University School of Med , Chicago	22	47	86	153	308
Northwestern University Med School, Chicago	87	59	51	39	236
Rush Medical School Chicago	125	125	130	108	488
University of Illinois, College of Medicine	47	22	48	110	227
Indiana University School of Medicine	47	37	39	33	156
State Univ of Iowa Coll of Med , Iowa City	59	43	20	29	151
State Univ of Iowa Coll of Homeo Med , Iowa City —H	4	4	2		10
University of Kansas School of Medicine	48	25	20	12	105
University of Louisville Medical Department	14	10	70	55	149
Tulane University of Louisiana School of Med	80	51	59	75	265
Bowdoin Medical School, Brunswick Portland	18	21	11	10	60
Johns Hopkins University Medical Dept	90	89	89	85	353
University of Maryland School of Medicine and College of Physicians and Surgeons	53	55	105	155	368
Boston University School of Medicine —H	16	11	28	20	75
College of Physicians and Surgeons, Boston	14	8	3	22	47
Medical School of Harvard University	104	95	68	67	334
Tufts College Medical School Boston	128	75	98	79	380
Univ of Michigan Medical School, Ann Arbor	108	83	69	64	324
Univ of Michigan Homeo Medical School —H	11	13	10	10	44
Detroit College of Medicine and Surgery	35	30	65	50	180
University of Minnesota Medical School	89	76	52	36	253
University of Mississippi Dept of Medicine	32	23			55
University of Missouri School of Medicine	42	32			74
Kansas City College of Med and Surg —E	30	40	20	18	108
Southwest School of Medicine and Hospital, Kansas City —H	7	1	4	8	20
National Univ of Arts and Sciences Med Dept	18	38	36	57	149
St Louis University School of Medicine	89	49	49	44	231
Washington University Med School St Louis	27	12	36	17	92
Lincoln Medical College, Lincoln —E	10	3	3	9	25
John A Creighton Medical College	24	17	45	42	128
University of Nebraska College of Medicine	48	35	19	21	123
Dartmouth Medical School Hanover	25	8			33
Albany Medical College Albany	27	24	44	53	148
University of Buffalo Dept of Med , Buffalo	48	29	66	38	181
Columbia University Coll of Phys and Surgs	135	116	97	71	419
Cornell Univ Medical College, New York City	56	33	31	31	151
Fordham University School of Medicine	90	74	50	42	256
Long Island College Hospital Brooklyn	57	45	82	88	272
New York Homeopathic Medical College and Flower Hospital —H	14	43	55	65	177
New York Med Coll & Hosp for Women —H	17	6	11	13	47
Univ and Bellevue Hosp Med Coll N Y City	168	111	68	48	395
Syracuse University College of Medicine	33	29	29	24	115
University of North Carolina School of Med	36	41			77
North Carolina Medical College, Charlotte		3	18	9	30
Leonard Medical School Raleigh	3	2			5
Wake Forest College School of Medicine	20	14			34
University of North Dakota School of Medicine	13	10			23
Eclectic Medical College Cincinnati —E	23	23	27	28	101
University of Cincinnati College of Medicine	23	23	20	22	88
Western Reserve University School of Medicine	52	42	32	52	178
Ohio State University College of Medicine	18	31	76	60	185
Ohio State University Coll of Homeo Med —H	11	13	8	7	39
University of Oklahoma School of Medicine	17	14	24	20	75
University of Oregon Dept of Med Portland	27	25	12	17	81
Hahnemann Med Coll and Hosp of Phila —H	33	11	34	20	98
Jefferson Medical College of Philadelphia	135	80	146	177	538
Medico Chirurgical College of Philadelphia	69	44	103	90	306
Temple University Dept of Med , Philadelphia	9	1	22	14	46
University of Pennsylvania School of Medicine	101	67	75	74	317
Woman s Medical College of Pennsylvania	10	8	20	17	55
University of Pittsburgh School of Medicine	54	19	16	22	111
Medical College of the State of South Carolina	11	13	20	17	61
University of South Dakota College of Med	5	7			12
Lincoln Memorial University Medical Dept		2	5	14	21
University of Tennessee College of Medicine	16	15	65	63	159
Univ of West Tenn College of Med and Surg	6	4	3	14	27
Meharry Medical College, Nashville	33	76	105	87	301
Vanderbilt University Medical Dept Nashville	23	26	76	87	212
Baylor University College of Medicine, Dallas	5	17	9	28	59
Fort Worth School of Medicine	16	8	19	7	50
University of Texas Department of Medicine	75	48	57	35	215
University of Utah School of Medicine	13	10			23
University of Vermont College of Medicine	21	24	17	14	76
Medical College of Virginia, Richmond	25	55	87	99	266
University of Virginia Department of Medicine	39	30	23	22	114
West Virginia University School of Medicine	8	9			17
University of Wisconsin Medical School	43	58			101
Marquette University School of Medicine	13	17	11	46	87
Totals for 1916	3582	3094	3559	3727	14022
Totals for 1915	3373	3919	3675	3864	14891
Totals for 1914	4684	3981	3807	3955	16502

H —Homeopathic E —Eclectic

* Figures for 1914 15, distribution by classes not given

This table shows for all colleges, except one, the number of students enroled in each of the four classes Eleven colleges teach only the first two years of the medical course Hahnemann Medical College of the Pacific, Lincoln Memorial University and the North Carolina Medical College had students only in the last three classes The Georgia College of Eclectic Medicine and Surgery had only seniors and graduated its last class

The largest first year classes are found at the University and Bellevue Hospital Medical College, 168, Columbia University College of Physicians and Surgeons and Jefferson Medical College each 135 Tufts College Medical School, 128 Rush Medical College 125 the University of Michigan Medical School, 108 Harvard University Medical School 104 and University of Pennsylvania School of Medicine 101 The smaller enrolments in the first and second year classes of the Atlanta Medical College, Loyola University School of Medicine and the Chicago College of Medicine and Surgery mark the beginning of a more rigid administration of their requirements for admission

The totals for the previous session are also given, to permit of comparison The marked reduction in the number of first year students is due to the general adoption of higher entrance standards Sixty students (of the Chicago Hospital College of Medicine) have been figured in the total (14,022) which are not shown by classes

The six colleges having the largest enrolments are Jefferson Medical College 538, Rush Medical College and Chicago College of Medicine and Surgery, each 488 Columbia University College of Physicians and Surgeons 419, and the University and Bellevue Hospital Medical College, 395

There were 3,582 freshmen enroled this year an increase of 209 over last year This is evidence that after a few years have been allowed for readjustments under the higher entrance standards, the enrolments of students will again increase

TABLE 4—ENROLMENTS IN MEDICAL COLLEGES FOR TWELVE YEARS

Name of College	Total Enrolment of Students in Session Ending in											
	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
University of Alabama School of Medicine	170	158	170	169	191	179	154	137	115	94	57[1]	56
University of Arkansas Med Dept	220	176	182	177	179	171	104	145	110	95	77	56[1]
College of Medical Evangelists						10	39	56	62	[illegible]	63[1]	51
College of Physicians and Surgeons, Los Angeles	25	32	34	37	32	69	108	126	125	133	132[1]	143
College of Physicians and Surgeons, San Francisco	144	145	79	70	40	29	23	16	19	34	62[1]	63
Hahnemann Medical College of the Pacific	34	24	28	33	23	34	34	35	38	40	45	43[1]
Oakland College of Medicine and Surgery	12	10	10	10	17	20	21	22	13	15	12	13[1]
Leland Stanford Junior University School of Med						15	16	70	53[3]	75	95	96
University of California Medical School	104	90-	54	36	36	107	92	88	111	124	133	124
University of Colorado School of Medicine	54	70	58	52	54	77	152	118-	90	54	79	79
Yale University School of Medicine	138	134	153	136	141	124	83[2]	63	42	49	49	58
Georgetown University School of Medicine	133	102	82	82	89	117	131	155	126	99*	81	53
George Washington University Med School	298	280	215	198	156	109	98	92	103	171	145[1]	141
Howard University School of Medicine	153	157	186	205	205	210	193[1]	170	122	110	100	100
Atlanta Medical College	250	180	200	234	280	334	320	372	338	488[4]	341	232[1]

TABLE 4—ENROLMENTS IN MEDICAL COLLEGES FOR TWELVE YEARS—(*Concluded*)

Name of College	Total Enrolment of Students in Session Ending in											
	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
Georgia College of Eclectic Medicine and Surgery	53	57	76	71	66	90	81	70	70	51	21	29
University of Georgia Medical Department	108	113	98	113	99	113	130	126	80	58	54[1]	54
Chicago College of Medicine and Surgery	202	189	239	395	396	580	630	556	642	638	579	488[2]
Chicago Hospital College of Medicine										75	60	60
Hahnemann Medical College of Chicago	220	178	136	117	130	131	107	104	76	92	86[1]	85
Jenner Medical College	102	250	185	175	112	105	117	138	191	109	175	98
Loyola University School of Med	103	166	153	150	186	231	283	402	395	406	393	308[2]
Northwestern University Medical School	593	580	473	533	537	637	397[1]	259	196[2]	180	194	236
Rush Medical College[5]	522	450	567	586	488	468	426	559	422	462	487	488
University of Illinois College of Medicine	654	556	501	463	517	526	508	506	535	422[1]	289	227
Indiana University School of Medicine	14	21	109	308	266	248[1]	188	155	146	133	152	156
State University of Iowa College of Medicine	277	267	272	266	266	190[1]	118	110	98	108	143	151
State University of Iowa College of Homeopathic Medicine	41	47	44	43	42	35	18	16	13	5	11	10
University of Kansas School of Medicine	32	162	115	101	90	89[2]	85	75	66	105	101	10[illegible]
University of Louisville Medical Department	248	213	456	331	706	624	447	353	255	278	208[1]	149
Tulane University of Louisiana School of Medicine	469	458	516	535	439	417	379[1]	321	296	327	286	[illegible]
Bowdoin Medical School	93	82	94	93	81	74	67	83	75[1]	67	70	60
Johns Hopkins University Medical Department[6]	291	293	264	281	297	334	347	357	351	360	361	353
University of Maryland School of Medicine	340	339	311	316	329	309	324	319	293	454	347[1]	368
Boston University School of Medicine	83	100	96	102	95	79	86	94	98	113	86[1]	75
College of Physicians and Surgeons Boston	168	134	123	162	172	80	198	89	80	110	55	47
Harvard University Medical School[6]	307	292	366	298	285	279	264	258	285	305	319	334
Tufts College Medical School	385	375	376	371	384	428	379	329	317	311	305	380
Detroit College of Medicine and Surgery	208	173	158	146	161	152	163	172	197	249	197[1]	150
University of Michigan Medical School	376	369	371	390	404	315	260	242	221	282	307	324
University of Michigan Homeopathic Medical School	66	82	82	82	81	74	92	91	63[1]	73	68	44
University of Minnesota Medical School	228	189	188	166	245	160	172	183	176	169	208	253
University of Mississippi Department of Med	18	22	18	28	27	50	50	44	38	35	45[1]	55
Eclectic Medical University	*56*	*46*	*36*	*41*	*50*	*21*	*49*	*50*	*42*	*65*	*65*	108[12]
National University of Arts and Sciences Med Dept	66	63	38	41	28	39	46	172	211	146	127	149
Southwest College of Medicine and Hospital												20
St Louis University School of Medicine	385	295	268	241	243	261	274[1]	271	233	204	188	231
University of Missouri School of Med	108	98[1]	66	65	47	29	34[2]	36	45	55	65	71
Washington University Medical School	254	230	215	208	201	205	123[1]	109	66	61	75	92
John A Creighton Medical College	167	172	167	158	177	194	188	194	182	182	148[1]	128
Lincoln Medical College	81	71	50	50	42	58	42	26	35	29	29	25
University of Nebraska College of Medicine	92	142	82	98	122	76[2]	72	70	78	84	96	123
Dartmouth Medical School	60	59	62	58	58	57	42	36	27	23	23	23
Albany Medical College	172	165	195	180	180	196	208	293	239	258	173[1]	145
Columbia University College of Physicians and Surgeons	568	450	387	322	312	360	378	347	339	308	381	419
Cornell University Medical College	392	369	342	316	217	164	116	85	102	108	134	151
Fordham University School of Medicine			24[1]	30	43	75	94	118	136	175	209	256
Long Island College Hospital	414	343	342	337	364	368	407	412	438	360	285[1]	272
New York Homeopathic Medical College	110	110	100	80	109	125	210	170	245	237	242	177[1]
New York Medical College and Hosp for Women	34	20	24	26	24	24	24	31	45	42	38	47
Syracuse University College of Medicine	154	153	153	150	149	140[1]	109	91	87	96	100	115
University and Bellevue Hospital Medical College	391	481	502	503	445	474	510	476	352[1]	333	364	395
University of Buffalo Department of Medicine	231	225	224	176	185	191	223	228	221	236	191[1]	181
Leonard Medical School	136	147	149	146	125	133	120	121	97	76	11	5
North Carolina Medical College	81	92	69	82	94	107	112	100	85	91[8]	52	30
Wake Forest College School of Medicine	18	20	39	40	53	37	38	39	32	28	26	34
University of North Carolina School of Medicine	100	96	114	114	113	74	51[1]	54	54	60	80	77
University of North Dakota School of Medicine		7	15	20	22	36	39	13	14	14	17	25
Eclectic Medical College	135	116	97	91	81	91	95	89	89	87	114	101
Ohio State University College of Medicine[13]				209	231	220	252	256	231	284	231[1]	18[illegible]
Ohio State University College of Homeopathic Medicine											46[1]	39
University of Cincinnati College of Medicine[14]	121	137	133	117	120	191	149[1]	113	80	60	80	88
Western Reserve University School of Medicine[6]	73	85	87	104	98	94	107	176	161	157	169	178
University of Oklahoma School of Medicine	8	16	13	8	10	21	63	51	32	94	93[1]	75
University of Oregon Department of Medicine	102	82	86	88	74	80	72[1]	67	57	79	82	81
Hahnemann Medical College of Philadelphia	164	186	188	168	187	159	135	116	92	93	85[1]	98
Jefferson Medical College	676	617	629	693	501	531	559	616	680	648	556[1]	538
Medico Chirurgical College of Philadelphia	461	467	434	419	461	455	462	341	314	350	297[1]	306
Temple University Department of Medicine	87	101	90	134	245	197	82	81	69	101	63[1]	46
University of Pennsylvania School of Medicine	546	577	588	604	544	529[1]	445	367	307	266	276	317
University of Pittsburgh School of Medicine	281	307	346	362	378	309	240	174[1]	145	124	103	111
Woman's Medical College of Pennsylvania	151	136	152	138	125	114	110	112	93	93	78[1]	55[2]
Medical College of the State of South Carolina	87	99	130	153	213	229	203	164	118	104	82[1]	61
University of South Dakota College of Medicine				3	11	7-	7	9	13	14	12	12
Lincoln Memorial University[8]	92	82	80	83	84	98	101	97	98	75[8]	43	21
Meharry Medical College	328	321	300	285	275	281	299	335	322	359	354	301[1]
University of Tennessee College of Medicine	164	182	167	137	119	203[9]	192	155	112	321[9]	212[1]	159
University of West Tennessee College of Medicine and Surgery	33	40	23	35	25	35	35	37	45	73	53	27
Vanderbilt University Medical Department	158	197	215	207	209	271	279	392	365	381	294[1]	212
Baylor University College of Medicine	132	70	57	62	53	67	90	68	71	50[1]	56	59
Fort Worth School of Medicine	191	192	176	108	100	81	90	71	60	48	43	50
University of Texas Department of Medicine	168	189	188	198	211	206	177[1]	162	153	172	189	215
University of Utah School of Medicine		30	46	28	18	30[1]	19	12	23	20	27	23
University of Vermont College of Medicine	185	170	165	142	166	178	186	176	140[1]	117	102	76
Medical College of Virginia	209	242	212	215	206	191	210	242	240	386[10]	339	266
University of Virginia Department of Medicine	145	122	134	106	88	87	79[1]	82	91	104	108	114
West Virginia University School of Medicine	36	35	45	24	40	27	13	19[1]	8	21	19	17
Marquette University School of Medicine	174	139	130	147	166	293	253	242	283[11]	169[1]	125	87
University of Wisconsin Medical School				26	32	48	48	60	66	83	96	101
Enrolment in colleges now extinct or merged	9 164	8 689	7,855	6 051	5 237	4 335	3 385	2 382	1 910	645	329	
Totals	26 147	25 204	24 276	22 602	22 145	21 526	19 786	18 412	17 015	16 502	14 891	14 022

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1 First enrolment under the entrance requirement of one year of college work

2 First enrolment under the entrance requirement of two years of college work

3 First enrolment for four classes Leland Stanford adopted the higher entrance standard in 1909

4 Combined enrolment after the merger of the Atlanta College of Physicians and Surgeons with the Atlanta School of Medicine in 1915

5 Rush Medical College began the requirement of two years of college work in 1904

6 Johns Hopkins Harvard and Western Reserve adopted the higher entrance standard respectively in 1896 1900 and 1901

7 Dartmouth Medical School and Leonard Medical School discontinued the teaching of the last two or clinical years of medicine in 1914

8 Has enroled no new students since 1914 Is nominally existing to graduate classes already enroled at that time

9 Combined enrolment after merger of the University of Nashville in 1909 The larger class in 1914 followed the merger of the Memphis Hospital Medical College in 1913

10 Combined enrolment after the merger of the University College of Medicine in 1913

11 Combined enrolment of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons which in 1912 were joined to form the Marquette University School of Medicine Figures given previous to 1913 are the annual enrolments of the Milwaukee Medical College which was the Medical Department of Marquette University

12 The enrolment for 1915-1916 was in the Kansas City College of Medicine and Surgery the evident successor to or offshoot from the Eclectic Medical University

13 Figures for 1908 to 1913 are for the Starling Ohio Medical College

14 Figures given are for the Medical College of Ohio from 1905 to 1909

(Continued from page 595)

two-thirds, were listed among Class A (acceptable) colleges[3] by the Council on Medical Education, four were Class B and two were Class C colleges Among the eight Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Michigan, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah On the other hand, eight colleges listed by the Council in Class C charge fees of from $100 to $175 per year for each student As shown on page 605, diplomas from Class C colleges are reported as not recognized by thirty-two state licensing boards A student would be silly if he knowingly spent his time and money in a low-grade college the diplomas of which were not recognized by many states,[4] when in the same time and for even less money he could attend one of the best-equipped colleges, the diplomas of which were recognized everywhere Although forty-one colleges listed in Class A charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges amounts to from two to three to several times these sums In fact, accurate data secured from eighty-two medical colleges this year show that the average amount received each year from the individual student was $150, while the average amount actually expended in the training of that student for a year was $419! And among these 82 colleges were several which still made profits from running the medical schools or paid all expenses including rents or costs of new buildings from students' fees!

TABLE 13—College Fees

Total Fees	Number of Colleges			
	Class A*	Class B	Class C†	Total
$ 50 or less	3	3		6
50 to $ 75	3	1	1	5
75 to 100	7		1	8
100 to 125	7	3	1	11
125 to 150	6	3	3	12
150 to 175	23	3	4	30
175 to 200	9	2		11
200 or above	9	1		10
Totals	67	16	10	93

* Based on the latest classification of medical colleges prepared by the Council on Medical Education (see page (—)

† Information not obtained for two Class C colleges

In this connection, a glance at Table 1 on page 588 will show that many of the Class A colleges have only from 7 to 75 students in each class, or totals of from 50 to 300 enrolled, when they could easily care for classes of 50 to 100, or total enrolments of 200 to 400 each It is quite evident, therefore, that with the same equipment and at practically no additional expense these schools could easily accommodate two, three, or in some instances several times the number of students at present enrolled, which would greatly reduce the disproportion of expense over income from fees A further reduction in the vast oversupply of medical schools in this country, therefore, would be in the interests of economy as well as of marked advantage to medical education

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois has heretofore had the largest number of medical colleges, but now, as shown in Table 14, the first place is held by New York, where there are ten colleges Illinois has eight, California has seven and Pennsylvania has six colleges This year New York has the largest number of students enrolled, having 2,161 matriculants last session, followed by Illinois with 1,990 and Pennsylvania with 1,471 In regard to the graduates, the same relative positions obtain

TABLE 14—Medical Colleges, Students and Graduates by States

State	College		Students		Graduates		Graduates with B S or A B
	Total	Class C	Men	Women	Men	Women	
Alabama	1		56		18		6
Arkansas	1		55	1	15	1	
California	7	2	458	75	92	17	53
Colorado	1		75	4	13		8
Connecticut	1		58		6		6
Dist of Columbia	3		286	8	48	1	12
Georgia	2		315		140		5
Illinois	8	2	1 875	115	602	25	119
Indiana	1		156		34		28
Iowa	2		158	3	29		10
Kansas	1		99	6	10	1	9
Kentucky	1		149		54		5
Louisiana	1		264	1	75		9
Maine	1		60		10		6
Maryland	2		683	38	199	6	95
Massachusetts	4	1	787	49	157	17	80
Michigan	3		529	10	113	8	53
Minnesota	1		246	7	49	2	42
Mississippi	1		55				
Missouri	6	2	655	19	130	5	22
Nebraska	3	1	268	8	68	3	20
New Hampshire	1		33				
New York	10	1	2 073	88	440	16	120
North Carolina	3		145	1	8		
North Dakota	1		23				
Ohio	5	1	570	21	160	7	60
Oklahoma	1		74	1	20		3
Oregon	1		78	3	16		2
Pennsylvania	6		1,404	67	372	19	93
South Carolina	1		61		16		5
South Dakota	1		12				
Tennessee	4	1	711	9	262	4	39
Texas	3		312	12	66	1	16
Utah	1		23				
Vermont	1		76		13		1
Virginia	2		380		104		19
West Virginia	1		17				
Wisconsin	2		177	11	45	1	3
Totals	95	11	13 456	566	3,384	134	948

TABLE 15—Statistics According to College Classification

Colleges*			Students		Graduates	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Class A	68	68 7	11 162	79 6	2 630	74 7
Class B	18	18 2	2 087	14 9	695	19 8
Class C and unclassified	13	13 1	773	5 5	193	5 5
Totals	99	100	14 022	100	3,518	100

* Includes 4 colleges which will hold no more sessions

Table 15 shows the colleges existing during the last session and their students and graduates grouped according to their rank in the classification of the Council on Medical Education As will be noted, there were sixty-eight colleges in Class A, eighteen in Class B, twelve in Class C, and one unclassified. It is encouraging to note that 79.6 per cent. of all students were enrolled in the 68.7 per cent. of colleges which are in Class A, and that these colleges turn out 74.7 per cent. of all graduates. At the other extreme, only 5.5 per cent. of all students and all graduates respectively were from the 13.1 per cent. of colleges rated in Class C.

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[3] See classification on page 604

[4] See also The Journal of April 8, 1916, p 1106 the table showing in what states the diplomas of the various medical colleges are not given recognition

COLLEGE NOTES

Colleges Closed.—Two medical colleges were closed this year, the Medico-Chirurgical College of Philadelphia, which merged with the University of Pennsylvania as its graduate School of Medicine, and the Georgia College of Eclectic Medicine and Surgery of Atlanta, which has become extinct.

New Colleges.—Two new colleges have been organized during the year. One was the Southwest College of Medicine and Hospital, Homeopathic, which occupies the same building as the Kansas City Hahnemann Medical College, which closed last year. It is reported not recognized by the Missouri State Board of Health after an inspection was made. The other is the Kansas City College of Medicine and Surgery, Eclectic, an offshoot of, if not the successor to, the notorious Eclectic Medical University, from which it apparently led away the entire student enrolment. No information has been received to indicate that the child will differ in character from its parent.

A group of men have revived the charter of the old Middlesex College of Cambridge, Mass. It is evident that the institution is furnishing M.D. degrees to osteopaths and possibly other drugless practitioners. It is therefore to be classed with drugless cult colleges.

Special Items Concerning Medical Education

California.—Leland Stanford Junior University School of Medicine is planning to erect a new hospital during the present summer, at a cost of $500,000.

——The University of California has received further gifts of $25,616.50 to the fund for the new University Hospital, which will be completed by the end of the present year, at a cost of over $600,000. The University has announced that in the immediate future it will erect a new building for the departments of anatomy and pathology, to cost $150,000, an outpatient building, to cost $100,000, a nurses' home, to cost $100,000, and that alterations costing $30,000 will be made on the present hospital building to fit it for use for the departments of physiology and physiological chemistry. Another scholarship, amounting to $400 per annum, to be known as the William Watt Kerr scholarship, has been established at the University of California by the medical alumni of that institution.

Connecticut.—The Yale Corporation has voted to admit a limited number of women students to the School of Medicine of Yale University.

——The New Brady Memorial Laboratory, the cost of which including equipment will be $125,000, is in course of construction and will be finished this fall. A new Roentgen-ray plant for the New Haven Hospital, the teaching institution of the School of Medicine of Yale University, is being erected and will be completed before the opening of the next college session. The school received $14,845 by the will of Norman B. Bayley.

Georgia.—The Atlanta Medical College will require two years of college work for admission beginning with the session of 1918-19. The school has secured $25,000 toward an endowment fund.

——The University of Georgia Medical Department has increased its entrance requirements to two years of college work for all students matriculating in the session of 1918-19 and thereafter.

Illinois.—The University of Illinois College of Medicine will commence immediately the erection of an eight-story clinical building to cost $250,000. This will comprise the first unit of the school's new plant, and will provide a dispensary, operating rooms, a floor for medical cases, one for surgical and one for obstetrical cases.

Iowa.—The State University of Iowa College of Medicine has set aside $42,000 for the erection of an isolation hospital having a capacity of forty beds, work on which has already been begun.

Kansas.—The University of Kansas School of Medicine received real and personal property valued at about $25,000 by the will of Dr. J. L. Porter.

Louisiana.—Commencing with the session of 1918-19 Tulane University of Louisiana School of Medicine will require two years of college work for admission.

Maine.—Bowdoin Medical School received from Dr. Thomas Upham Coe a donation of $27,000 for the erection of an infirmary.

Maryland.—The University of Maryland School of Medicine and College of Physicians and Surgeons has increased its entrance requirements to two years of college work for all students matriculating in the session of 1918-19 and thereafter. The institution has received an appropriation of $25,000 a year for two years from the state legislature.

——A valuable collection of periodicals, monographs and other medical books, consisting of more than 4,000 volumes, was presented to the Johns Hopkins Hospital by Dr. Howard A. Kelly. Most of the books deal with special work in gynecology and obstetrics and are valued at about $25,000.

Michigan.—The University of Michigan received $6,000 by the will of Dr. Florence Huson. The sum is to be used to defray the expenses of women students, preferably those in the medical department.

Missouri.—The St. Louis University School of Medicine will require two years of college work for admission beginning with the session of 1918-19. A memorial fund amounting to $2,200 was raised by friends of the late Dr. Jessie S. Myer and presented to the school for the purchase of books on internal medicine.

——The General Education Board has appropriated $250,000 more for the Medical School of Washington University, making a total donation of $1,000,000 toward a gift of $1,500,000, to be used in placing the teaching of medicine, surgery and pediatrics on the so-called full-time basis. The school received a gift of $166,000 from Edwin Mallinckrodt and a similar amount from John W. Milliken.

Nebraska.—The Board of Regents of the University of Nebraska have approved plans for a new hospital to be erected in connection with the College of Medicine. The building is to be five stories in height and will have six wards, three receiving rooms, six groups of isolation rooms and the necessary operating rooms, operating amphitheater and rooms for administration and service.

New York.—Albany Medical College received $41,000 from five citizens of Albany to meet this year's deficit in the running expenses. A gift of $12,635.20 was provided by the will of Dr. John M. Bigelow.

——The entrance requirements of the Long Island College Hospital for students who enter in the session of 1918-19 and thereafter will be two years of college work. The institution received $75,000 by the will of Mrs. Katherine S. Leavitt, a bequest of $20,000 from Francis Ripley and $5,000 from an anonymous benefactor.

——Commencing with the session of 1918-19 the entrance requirements of the University and Bellevue Hospital Medical College will include two years of college work.

——The New York Medical College and Hospital for Women has received contributions amounting to $62,000 toward the $250,000 fund expected to be raised during the year. Of this amount $10,000 was contributed by W. W. Cole and $2,000 by Dr. Cornelia C. Brant, the dean of the college. The institution received a donation of $5,000 by the will of Colonel Edward M. Knox and a gift of $1,000 for laboratory equipment from Dr. Marshall O. Terry.

North Carolina.—A bequest of $1,000 was received by the Leonard Medical School by the will of the late Dr. Samuel Guy of Virginia.

North Dakota.—The North Dakota legislature at its last session appropriated $2,500 for an equipment fund for the School of Medicine of the University of North Dakota.

Ohio.—The Ohio State University College of Medicine will require two years of college work for admission in 1916-1917 *and thereafter*.

(Continued from page 595)

two-thirds, were listed among Class A (acceptable) colleges[3] by the Council on Medical Education, four were Class B and two were Class C colleges Among the eight Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Michigan, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah On the other hand, eight colleges listed by the Council in Class C charge fees of from $100 to $175 per year for each student As shown on page 605, diplomas from Class C colleges are reported as not recognized by thirty-two state licensing boards A student would be silly if he knowingly spent his *time and money in* a low-grade college the diplomas of which were not recognized by many states,[4] when in the same time *and for even less money* he could attend one of the best-equipped colleges, the diplomas of which were recognized everywhere Although forty-one colleges listed in Class A charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges amounts to from two to three to several times these sums In fact, accurate data secured from eighty-two medical colleges this year show that the average amount received each year from the individual student was $150, while the average amount actually expended in the training of that student for a year was $419! And among these 82 colleges were several which still made profits from running the medical schools or paid all expenses including rents or costs of new buildings from students' fees!

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Total Fees	Number of Colleges			
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75 to 100	7		1	8
100 to 125	7	3	1	11
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150 to 175	23	3	4	30
175 to 200	9	2		11
200 or above	9	1		10
Totals	67	16	10	93

* Based on the latest classification of medical colleges prepared by the Council on Medical Education (see page (—)
† Information not obtained for two Class C colleges

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Indiana	1		156		34		28
Iowa	2		158	3	29		10
Kansas	1		99	6	10	1	9
Kentucky	1		149		54		5
Louisiana	1		264	1	75		9
Maine	1		60		10		6
Maryland	2		683	88	199	6	95
Massachusetts	4	1	787	49	157	17	80
Michigan	3		529	10	113	8	53
Minnesota	1		246	7	49	2	42
Mississippi	1		55				
Missouri	6	2	655	19	150	5	22
Nebraska	3	1	208	8	68	3	20
New Hampshire	1		33				
New York	10	1	2 073	88	440	16	120
North Carolina	3		145	1	8		
North Dakota	1		23				
Ohio	5	1	570	21	160	7	60
Oklahoma	1		74	1	20		3
Oregon	1		78	3	16		2
Pennsylvania	6		1,404	67	372	10	93
South Carolina	1		61		16		5
South Dakota	1		12				
Tennessee	4	1	711	9	262	4	39
Texas	3		312	12	66	1	16
Utah	1		23				
Vermont	1		76		13		1
Virginia	2		380		104		19
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Wisconsin	2		177	11	45	1	3
Totals	95	11	13 456	566	3,384	134	948

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Totals	99	100	14,022	100	3,518	100

* Includes 4 colleges which will hold no more sessions

Table 15 shows the colleges existing during the last session and their students and graduates grouped according to their rank in the classification of the Council on Medical Education As will be noted,

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[3] See classification on page 604

[4] See also The Journal of April 8, 1916, p 1106, the table showing in what states the diplomas of the various medical colleges are not given recognition

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

Essentials of an Acceptable Medical College

(Revised to Aug 1, 1916)

The following outline of the essentials of an acceptable medical college was issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development in progress in the medical colleges of the United States It also represents the basis on which medical colleges are rated in the Council's classifications

ADMISSION OF STUDENTS

1 A strict enforcement of the following standards and requirements the college itself to be held responsible for any instances in which they are not enforced

Note—Since the product of the medical school depends largely on the quality of the students admitted in rating medical colleges special emphasis is laid by the Council on the strictness and honesty by which the standards of admission and advanced standing are administered By the admission of unfit students the school is handicapped from the very beginning and in the opinion of the Council deserves a low rating regardless of its equipment its clinical facilities and its teaching force

2 A requirement for admission by the medical school of a four-year high school education, and in addition at least one year of college work and after Jan 1, 1918 two years of college work This premedical college work must have been taken in a college of arts and sciences approved by the Council or in lieu thereof the student must have an equivalent education as demonstrated by an examination approved by the Council

I HIGH SCHOOL REQUIREMENTS

(a) For admission to the preliminary college year, students must have completed *a four-year course of at least fourteen units* in a standard accredited high school or other institution of standard secondary school grade or have its equivalent as demonstrated by an examination conducted by a duly authorized examiner of the College Entrance Examination Board or by the authorized examiner of a standard college or university who has been approved by the Council on Medical Education or by an examiner whose certificates are accepted by such approved standard colleges or universities *A detailed statement of attendance at the secondary school and a transcript of the student's work should be kept on file by the medical school authorities* This evidence of actual attendance at the secondary school or schools should be obtained for every student no matter whether he is admitted to the freshman or to advanced classes

(b) The subjects for which credits for admission to the preliminary college year may be accepted are shown in the accompanying schedule

II PRELIMINARY COLLEGE WORK

(c) Until Jan 1 1918 the minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above is one year of collegiate work, extending through thirty-two weeks and covering thirty semester hours[1] which must have been completed by the student before he is eligible for admission This college work should include courses of at least eight semester hours each in physics chemistry and biology, including laboratory work It is urged that the student obtain a reading knowledge of a modern language preferably French or German These subjects and the amounts required are shown in the accompanying schedule

After Jan 1 1918 the minimum requirement for admission to acceptable medical schools will be two years (sixty semester hours) of work in a college of arts and sciences approved by the Council on Medical Education or its actual educational equivalent as demonstrated by an examination approved by the Council It is suggested that in addition to the courses outlined in the preceding paragraph, this two year course include a course in organic chemistry a second year of biology and more work in the modern language unless the student already possesses a reading knowledge of it

APPROVED COLLEGES OF ARTS AND SCIENCES

3 (a) A list of colleges of arts and sciences approved by the Council on Medical Education will be prepared and published from time to time By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence To be recognized a college must have sufficient scientific equipment and maintain laboratories in the premedical sciences It must have ample endowment to maintain a sufficient corps of teachers Membership in some national organization or association of colleges will be favorably regarded by the Council and, in the absence of such membership careful investigation will be made of the causes of exclusion

(b) An approved college must also maintain national standards for admission to its freshman class Students must be required to complete a four-year high school course, and the requirements for admission to the premedical course must be fully equal to the requirements for the regular B S course of the college The admission of students must be in the hands of a responsible committee or examiner whose records shall always be open for *inspection* *Documentary* evidence of the students' preliminary education should be obtained and kept on file Particular attention will be given to the character of high schools from which certificates are received Colleges should recognize only certificates from high schools approved by commissions or boards of associations of colleges and secondary schools or other agencies approved by the Council When such endorsement is lacking the college should be slow in accepting certificates without the support of entrance examinations Undue liberality in the acceptance of certificates from secondary schools unendorsed by approved standardizing agencies will be registered by the Council as a failure to comply with its requirements and the college will be dropped from the approved list

(c) Unless the university examiner and his records are closely accessible, the medical school should obtain and keep

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS, CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSES

Subjects	Units	Required	Elective
ENGLISH LITERATURE AND COMPOSITION	3 4	3	1
MATHEMATICS			
Elementary algebra	1	1	
Advanced algebra	½ 1		½ 1
Plane geometry	1	1	
Solid geometry	½		½
Trigonometry	½		½
LATIN	1 4	*	1 4
Greek	1 3	*	1 3
FRENCH	1 4	2*	1 4
GERMAN	1 4	2*	1 4
Other Foreign Languages	2		2
HISTORY			
Ancient history	1	**	1
Medieval and modern history	1	**	1
English history	½ 1	**	½ 1
American history	½ 1	**	½ 1
Civil government	½ 1	**	½ 1
SCIENCE †			
Botany	½ 1		½ 1
Zoology	½ 1		½ 1
Chemistry	1		1
Physics	1		1
Physiography	½ 1		½ 1
Physiology	½ 1		½ 1
Astronomy	½		½
Geology	½ 1		½ 1
Agriculture	1 2		1 2
Bookkeeping	1		1
Business Law	½		½
Commercial geography	½-1		½ 1
Domestic science	1 2		1 2
Drawing freehand and mechanical	½ 2		½ 2
Economics and economic history	½ 1		½ 1
Manual training	1 2		1 2
Music Appreciation or harmony	1 2		1 2

A *unit* is the credit value of at least 36 weeks work of 4 or 5 recitation periods per week each recitation period to be of not less than 40 minutes In other words a unit represents a year s study in any subject in a secondary school constituting approximately a quarter of a full year s work A satisfactory year s work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty minute hours or their equivalent.

Required Branches Of the 14 units of high school work it is suggested that the subjects in capitals aggregating 8 units be *required* Other work to the amount of at least 7 units may be made up from any of the other subjects of the above schedule

* Two units of Greek or Latin may be substituted for the two required units of French or German

** One unit of history and civics prescribed

† Credentials of each science course must include evidence of laboratory work

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[1] A semester hour is the measurement of work represented by one class period per week for half of the college year Each laboratory period to be so valuated must extend over at least two hours

on file documentary evidence of all students' preliminary education including both high school and collegiate work It is particularly important that the records show that the required amount of work in the premedical sciences, including laboratory exercises, has been completed

(d) Premedical college courses given in or by medical schools, or advance years taken in high schools, will not be *considered as acceptable unless they have been investigated* and approved by some association of colleges and secondary schools or other approved agency having to do with the standardizing of liberal arts colleges

MEDICAL SCHOOL REQUIREMENTS

4 The college should require that students be in actual attendance in the college *within the first week* of each annual *session and thereafter*

5 Actual attendance at classes should be insisted on except for good cause, such as for sickness, and under no circumstances should credit be given for any course where the attendance has been less than 80 per cent of the full time

6 (a) Full advanced standing may be granted to students only for work done in other acceptable colleges, and in granting advanced standing there should be no discrimination against the college's full-course students (b) In *exceptional cases* students from Class B medical schools may be given advanced standing but not higher than *entrance* to the third year (junior) class, and *no* credit should be given in any subject except on recommendation of the head of the department teaching that subject (c) In *exceptional cases* students from Class C colleges may be given advanced standing but not higher than *entrance to the second year (sophomore)* class, and then only after thorough examinations in all first year subjects have been passed

SCHEDULE

Subject	Lectures or Recitations per Week	Laboratory Periods* per Week	Total Hours per Semester	Total Semester Hours per Year
Physics 1	2 or 3	2 or 1	4	8
Chemistry, 1	2	2	4	8
Biology, 1	2 or 3	2 or 1	4	8
Elective, preferably French or German, 2	4 or 3		4 or 3	8 or 6
Totals	9 or 11	6 or 5	16 or 15	32 or 30

* Each laboratory period must extend at least two hours

SUPERVISION, EQUIPMENT, TEACHERS

7 There should be careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out fair ideals of medical education as determined by modern knowledge

8 *There should be a good system of records showing* conveniently and in detail the credentials, attendance, grades and accounts of the students by means of which an exact knowledge can be obtained regarding each student's work Records should also be kept showing readily the attendance of patients at the teaching hospitals and dispensaries, the maternity cases attended by students, and the postmortem cases used in teaching

9 The college should *have a fully* graded course covering four years of at least thirty-two weeks each, exclusive of time required for matriculation and holidays, and at least thirty hours per week of actual work, this course should be clearly set forth in a carefully prepared and printed schedule of lectures and classes

(*a*) The college should give two years of work consisting largely of laboratory work in thoroughly equipped laboratories in anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis Present-day medical knowledge makes it essential that these subjects be in charge of full-time, well-trained teachers

(*b*) Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), *surgery* (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, [illegible] medical jurisprudence hygien

(*c*) As soon as conditions warrant, a fifth undergraduate year should be required which should be spent by the student as an intern in an approved hospital

10 The college should provide at least *six expert, thoroughly trained professors* in the laboratory branches, salaried so that they may devote their entire time to instruction and to that research *without which they cannot well keep* up with the rapid progress being made in their subjects[2] There should also be a sufficient number of assistants in each department to look after the less important details For colleges having *sixty students or less* in each class, there should be *at least one full-time salaried assistant each in the departments* of (*a*) anatomy, (*b*) physiology, (*c*) pathology and bacteriology, and (*d*) physiologic chemistry and pharmacology, and *one additional assistant in each of these departments should be provided for each additional thirty students enrolled* This represents a low average of the full-time assistants already employed by the acceptable medical colleges

11 The faculty should be thoroughly organized and should be made up of graduates of institutions recognized as medical colleges and who have had a training in all departments of medicine Nonmedical men should be selected as teachers in medical schools only under exceptional circumstances and only when medical men of equal special capacity are not available Faculty members should be appointed because of their ability as teachers and not because they happen to be on the attending staff of a hospital or for other like reasons

CLINICAL FACILITIES

12 The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff This hospital should be in close proximity to the college and have a daily average (for senior classes of 100 students *or less*) of not less than 200 patients who can be utilized for clinical teaching, these patients to be of such character as to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties In the use of this material it is suggested that *bedside and ward clinics* be developed for sections of from five to ten students, and that a certain number of patients in medicine, surgery and the specialties be assigned to each senior student A well supervised clinical clerk system should also be installed The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, or the attending staff of the hospital[3]

13 The college should also have ample hospital facilities for children's diseases, contagious diseases and nervous and mental diseases

14 At least six maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the attending physician Careful records of each case should be handed in by the student

15 Facilities should be provided for at least thirty necropsies (for senior classes of 100 students *or less*) during each college session which are attended and participated in by senior students

16 The college should own or control a dispensary, or outpatient department, the attendance to be a daily average of 100 patients (visits) (for senior classes of 100 students *or less*), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used The attending staff should be made up of good teachers, should be well organized and be regular in attendance

OTHER TEACHING FACILITIES AND FINANCES

17 The college should have a working medical library to include the more modern text and reference books with the *Index Medicus* and thirty or more leading medical periodi-

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[2] These professors should have a definite responsibility *in the* conduct of the college, and their first and chief interest should be the training of medical students It is advised that four of these professors be placed in charge of the departments of (*a*) anatomy, (*b*) physiology (*c*) pathology and bacteriology and (*d*) physiologic chemistry and pharmacology The other two may be assigned *one* to the laboratory course in histology and embryology under the department of anatomy and the other to the department of pathology and bacteriology, possibly to the course in laboratory clinical diagnosis

[3] Suggestions more in detail may be found *in the "Report of the* Committee on the Reorganization of Clinical Teaching," The Journal A M A, March 6, 1915 Reprint sent on application.

cals, the library room should be properly lighted and heated, and easily accessible to students during all or the greater part of the day, it should be equipped with suitable tables and chairs, and have a librarian in charge

18 A working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes It is suggested that so far as possible with each pathologic specimen coming from postmortems there also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen

19 There should be sufficient dissecting material to enable each student individually to dissect at least the lateral half of the human cadaver, to provide cross-sections and other demonstration material and to allow of a thorough course for each senior in operative surgery on the cadaver

20 For modern experimental laboratory work in physiology, pharmacology and bacteriology as well as for a reasonable amount of medical research, a supply of animals—frogs, turtles, rabbits and guinea-pigs, if not also cats and dogs—is essential Proper provision, also, is necessary for the housing and care of such animals In any use made of animals great care should be used to prevent needless suffering and work by students should be carefully supervised

21 A supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray and other apparatus now so generally used in medical teaching

22 The college should show evidences of thorough organization and of reasonably modern methods in all departments and evidences that the equipment and facilities are *being intelligently used* in the training of medical students

23 A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions, courses offered and graduation should be clearly set forth together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements

24 Statistics show[4] that modern medicine cannot be acceptably taught by a medical school depending solely on the income from students' fees No medical school should expect to be retained in Class A, therefore, which does not have an annual income of at least $25,000 in addition to the amount obtained from students' fees

NOTE—Correspondence from medical colleges regarding the above requirements is invited and further suggestions or information available will be gladly furnished

Grading of Medical Colleges

All medical colleges are rated by the Council on Medical Education on a civil service basis on a scale of 1,000 points The data relating to each college are grouped under ten general heads in such manner that the groups have as nearly equal weight as possible, each group allowing a possible 100 points (10 per cent) out of a possible 1,000 points (100 per cent) The ten heads under which the data are arranged are as follows

1 Showing of graduates before state boards and other evidences of the training received
2 Enforcement of a satisfactory preliminary educational requirement granting of advanced standing and the character of the records
3 Character of curriculum grading of course length of session time allowed for matriculation and supervision
4 Medical school buildings light, heat ventilation, cleanliness
5 Laboratory facilities and instruction
6 Dispensary facilities and instruction
7 Hospital facilities and instruction maternity work necropsies specialties
8 Faculty number and qualifications of trained teachers full time instructors and assistants especially of the laboratory branches organization and extent of research work
9 Extent to which the school is conducted for properly teaching the science of medicine rather than for the profit of the faculty directly or indirectly
10 Possession and use made of libraries museums charts stereopticons etc

Class A colleges are those which are acceptable, Class B those which under their present organization, might be made acceptable by general improvements and Class C, those which require a complete reorganization to make them acceptable

CLASSIFICATION OF MEDICAL COLLEGES

Revised to Aug 1, 1916

CLASS A—ACCEPTABLE MEDICAL COLLEGES

ALABAMA	
University of Alabama School of Medicine	Mobile
CALIFORNIA	
Leland Stanford Junior Univ School of Med	San Francisco
University of California Medical School	San Francisco
COLORADO	
University of Colorado School of Med	Boulder-Denver
CONNECTICUT	
Yale University School of Medicine	New Haven
DISTRICT OF COLUMBIA	
Georgetown University School of Medicine	Washington
George Washington University Medical School	Washington
Howard University School of Medicine	Washington
GEORGIA	
Atlanta Medical College	Atlanta
University of Georgia Medical Department	Augusta
ILLINOIS	
Northwestern University Medical School	Chicago
Rush Medical College (University of Chicago)	Chicago
University of Illinois College of Medicine	Chicago
INDIANA	
Indiana Univ School of Med	Bloomington-Indianapolis
IOWA	
State University of Iowa College of Medicine	Iowa City
State Univ of Iowa Coll of Homeopathic Med	Iowa City
KANSAS	
University of Kansas School of Med	Lawrence-Rosedale
KENTUCKY	
University of Louisville Medical Department	Louisville
LOUISIANA	
Tulane Univ of Louisiana School of Med	New Orleans
MAINE	
Bowdoin Medical School	Brunswick-Portland
MARYLAND	
Johns Hopkins University Medical Department	Baltimore
University of Maryland School of Medicine and the College of Physicians and Surgeons	Baltimore
MASSACHUSETTS	
Boston University School of Medicine	Boston
Medical School of Harvard University	Boston
Tufts College Medical School	Boston
MICHIGAN	
Detroit College of Medicine and Surgery	Detroit
University of Michigan Medical School	Ann Arbor
University of Mich Homeopathic Med School	Ann Arbor
MINNESOTA	
University of Minnesota Medical School	Minneapolis
MISSISSIPPI	
University of Mississippi Dept of Medicine*	Oxford
MISSOURI	
St Louis University School of Medicine	St Louis
University of Missouri School of Medicine*	Columbia
Washington University Medical School	St Louis
NEBRASKA	
University of Nebraska College of Medicine	Omaha
NEW HAMPSHIRE	
Dartmouth Medical School*	Hanover

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[4] See Medical College Finances The Journal A M A April 8, 1916 p 1115

[5] In 1915 the University of Maryland School of Medicine and the College of Physicians and Surgeons of Baltimore were merged into one institution which retains the double title

* These colleges give only the first two years of the medical course

New York

Albany Medical College	Albany
Columbia Univ Coll of Phys and Surgs	New York City
Cornell University Medical College	New York City
Fordham University School of Medicine	New York City
Long Island College Hospital	Brooklyn
Syracuse University College of Medicine	Syracuse
University and Bellevue Hospital Med Coll	New York City
University of Buffalo Department of Medicine	Buffalo

North Carolina

University of North Carolina School of Med *	Chapel Hill
Wake Forest College School of Medicine*	Wake Forest

North Dakota

University of North Dakota School of Medicine*	University

Ohio

Ohio State University College of Medicine	Columbus
University of Cincinnati College of Medicine	Cincinnati
Western Reserve University School of Medicine	Cleveland

Orfgon

University of Oregon Department of Medicine	Portland

Pennsylvania

Hahnemann Medical College and Hospital	Philadelphia
Jefferson Medical College of Philadelphia	Philadelphia
University of Pennsylvania School of Med	Philadelphia
University of Pittsburgh School of Medicine	Pittsburgh
Woman's Medical College of Pennsylvania	Philadelphia

South Carolina

Medical College of the State of South Carolina[6]	Charleston

South Dakota

University of South Dakota College of Medicine*	Vermilion

Tennessee

Vanderbilt University Medical Department	Nashville
University of Tennessee College of Medicine	Memphis

Texas

Baylor University College of Medicine[7]	Dallas
University of Texas Department of Medicine	Galveston

Utah

University of Utah School of Medicine*	Salt Lake City

Vermont

University of Vermont College of Medicine	Burlington

Virginia

Medical College of Virginia	Richmond
University of Virginia Department of Med	Charlottesville

Wisconsin

Marquette University School of Medicine	Milwaukee
University of Wisconsin Medical School*	Madison

Total, 67

CLASS B—COLLEGES NEEDING GENERAL IMPROVEMENTS TO BE MADE ACCEPTABLE

Arkansas

University of Arkansas Medical Department	Little Rock

California

College of Physicians and Surgeons	Los Angeles
Oakland College of Medicine and Surgery	Oakland

Illinois

Loyola University Medical Department†	Chicago
Chicago College of Medicine and Surgery	Chicago
Hahnemann Medical College and Hospital	Chicago

Nebraska

John A Creighton Medical College	Omaha

New York

New York Homeopathic Medical College and Flower Hospital	New York City

North Carolina

Leonard Medical School[4]	Raleigh

Ohio

Eclectic Medical College	Cincinnati

Oklahoma

Univ of Oklahoma School of Med	Norman-Oklahoma City

Pennsylvania

Temple University Department of Medicine	Philadelphia

Tennessee

Meharry Medical College	Nashville

Texas

Fort Worth School of Medicine	Fort Worth

West Virginia

West Virginia University School of Med *	Morgantown

Total, 15

CLASS C—COLLEGES REQUIRING A COMPLETE REORGANIZATION TO MAKE THEM ACCEPTABLE

California

College of Medical Evangelists	Loma Linda-Los Angeles
College of Physicians and Surgeons	San Francisco

Illinois

Chicago Hospital College of Medicine	Chicago
Jenner Medical College	Chicago

Massachusetts

College of Physicians and Surgeons[8]	Boston

Missouri

Eclectic Medical University[9]	Kansas City
Southwest School of Medicine and Hospital[9]	Kansas City
National Univ of Arts and Sciences Med Dept[10]	St Louis

Nebraska

Lincoln Medical College[11]	Lincoln

New York

New York Med Coll and Hosp for Women	New York City

Ohio

Ohio State Univ Coll of Homeopathic Med	Columbus

Tennessee

University of West Tenn Coll of Med and Surg	Memphis

Total 12

CLASSIFICATION OF CANADIAN MEDICAL COLLEGES

Class A

University of Toronto Faculty of Medicine	Toronto, Ont
McGill University Faculty of Medicine	Montreal, Que

Class B

Dalhousie University Faculty of Medicine	Halifax, N S
Montreal School of Medicine and Surgery	Montreal, Que
Laval University Faculty of Medicine,	Quebec, Que
University of Manitoba, Manitoba Medical College	Winnipeg, Ont

Class C

Queen's University Faculty of Medicine	Kingston, Ont
Western University Faculty of Medicine	London, Ont

The University of Alberta at Edmonton, *besides the pre-medical year*, gives only the first two years of the medical course as measured by that of the medical schools of the United States It has not been inspected

Colleges Not Recognized

The licensing boards of New Hampshire, Rhode Island and Virginia report that they recognize only the medical colleges listed in Class A

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[6] Rating changed from Class B to Class A Feb 6, 1916

[7] Rating raised to Class A, June 12 1916

† Heretofore known as the Bennett Medical College

[8] Reported not recognized by the Massachusetts Medical Society

[9] Reported not recognized by the Missouri State Board of Health

[10] Formerly known as the American Medical College

[11] Formerly known as the Cotner University Medical College

Official statement from the following thirty-four state licensing boards indicate that as a rule the colleges rated in Class C are not recognized

Alabama
Arkansas (Reg)
Colorado
Connecticut (Reg)
Delaware
Florida (Reg)
Georgia
Indiana
Iowa
Kentucky
Louisiana (Reg)
Maine
Maryland (Reg)
Michigan
Minnesota
Mississippi
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Pennsylvania
Porto Rico
Rhode Island
South Carolina
South Dakota
Texas
Vermont
Virginia
West Virginia
Wisconsin

A table (Table D) showing in what states diplomas from various medical colleges are not fully recognized appears in THE JOURNAL of April 8, 1916, on page 1106

State Requirements of Higher Preliminary Education

There are now thirty-three states which have adopted requirements of preliminary education in addition to a standard four-year high school education These states, the number of college years required and the time the higher requirements became effective are as follows

State Examining Board of	Number of Years Required	Affects Students Matriculating	Affects All Graduates
Requiring Two Years			
Alabama	2	1915-16	1919
Arizona	2	1918-19	1922
Colorado	2	1910-11	1914
Indiana	2	1911-12	1915
Iowa	2	1911-12	1915
Maryland	2	1918-19	1922
Minnesota	2	1908-09	1912
New Hampshire	2	1915-16	1919
New Jersey	2	1917-18	1921
New Mexico	2	1918-19	1922
North Dakota	2	1908-09	1912
Oklahoma	2	1917-18	1921
Rhode Island	2	1918-19	1922
South Dakota	2	1911-12	1915
Virginia	2	1917-18	1921
Washington	2	1918-19	1922
Wisconsin	2	1915-16	1919
Requiring One Year			
Arizona*	1	1914-15	1918
Arkansas	1	1915-16	1919
California	1	1915-16	1919
Connecticut	1	1910-11	1914
Illinois	1	1915-16	1919
Indiana*	1	1910-11	1914
Kansas	1	1910-11	1914
Kentucky	1	1914-15	1918
Louisiana	1	1915-16	1919
Maryland	1	1914-15	1918
Michigan	1	1914-15	1918
Mississippi	1	1915-16	1919
New Hampshire*	1	1914-15	1918
New Jersey*	1	1916-17	1920
North Carolina	1	1914-15	1918
Oklahoma*	1	1914-15	1918
Pennsylvania	1	1914-15	1918
Rhode Island*	1	1914-15	1918
Tennessee	1	1915-16	1919
Texas	1	1914-15	1918
Utah	1	1913-14	1917
Vermont	1	1913-14	1917
Virginia*	1	1914-15	1918
Washington*	1	1914-15	1918
West Virginia	1	1917-18	1921

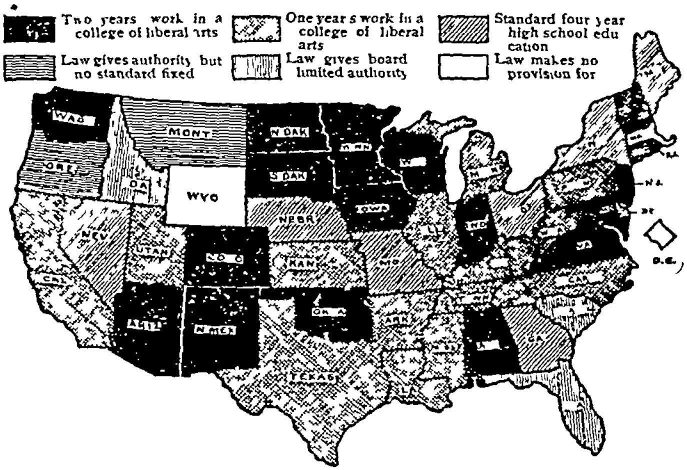
* The 2 year requirement becomes effective later

Colleges Having Higher Entrance Requirements

The forty-six medical schools* which are now requiring, as a minimum for entrance *two years* or more of work in a college of liberal arts in addition to a four-year high-school education, the year when the higher requirement became effective and the rating of each college, are as follows

	In Effect	College Rating
ALABAMA		
University of Alabama School of Medicine	1915	A
CALIFORNIA		
College of Medical Evangelists	1915	C
College of Physicians and Surgeons Los Angeles	1916	B
Leland Stanford Junior University School of Medicine	1909	A
University of California Medical School	1905	A
COLORADO		
University of Colorado School of Medicine	1910	A
CONNECTICUT		
Yale University School of Medicine	1909	A
DISTRICT OF COLUMBIA		
Georgetown University School of Medicine	1912	A
Howard University School of Medicine	1914	A
ILLINOIS		
Northwestern University Medical School	1911	A
Rush Medical College (University of Chicago)	1904	A
University of Illinois College of Medicine	1914	A
INDIANA		
Indiana University School of Medicine	1910	A
IOWA		
State University of Iowa College of Medicine	1910	A
State University of Iowa College of Homeopathic Medicine	1910	A
KANSAS		
University of Kansas School of Medicine	1909	A
MAINE		
Bowdoin Medical School	1916	A
MARYLAND		
Johns Hopkins University Medical Department	1893	A
MASSACHUSETTS		
Boston University School of Medicine	1916	A
Medical School of Harvard University	1900	A
MICHIGAN		
University of Michigan Medical School	1909	A
University of Michigan Homeopathic Medical School	1916	A
MINNESOTA		
University of Minnesota Medical School	1907	A

STATE REQUIREMENTS OF PRELIMINARY EDUCATION FOR PHYSICIANS


Two years work in a college of liberal arts
One year's work in a college of liberal arts
Standard four year high school education
Law gives authority but no standard fixed
Law gives board limited authority
Law makes no provision for
WASH
ORE
MONT
N DAK
S DAK
MINN
WIS
MICH
WYO
IOWA
NEBR
COLO
KANS
UTAH
NEV
CAL
ARIZ
N MEX
OKLA
TEXAS
IND
VA
GA
MASS
N J
DEL
D C

In Arkansas and Louisiana the higher standard has been adopted by the regular board only

	In Effect	College Rating
MISSOURI		
University of Missouri School of Medicine	1910	A
Washington University Medical School	1912	A
NEBRASKA		
University of Nebraska College of Medicine	1909	A
NEW HAMPSHIRE		
Dartmouth Medical School	1910	A
NEW YORK		
Columbia University College of Physicians and Surgeons	1910	A
Cornell University Medical College	1908	A
Syracuse University College of Medicine	1910	A
NORTH CAROLINA		
Leonard Medical School	1914	B
Wake Forest College School of Medicine	1908	A
NORTH DAKOTA		
University of North Dakota School of Medicine	1907	A
OHIO		
Ohio State University College of Medicine	1915	A
Ohio State Univ College of Homeopathic Medicine	1916	C
University of Cincinnati College of Medicine	1913	A
Western Reserve University School of Medicine	1901	A
PENNSYLVANIA		
University of Pennsylvania School of Medicine	1910	A
University of Pittsburgh School of Medicine	1913	A
Woman's Medical College of Pennsylvania	1915	A
SOUTH CAROLINA		
Medical College of the State of South Carolina	1916	A
SOUTH DAKOTA		
University of South Dakota College of Medicine	1909	A

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* Colleges will be omitted from this list unless evidence obtained shows that in the admission of students they are requiring at least sixty semester hours of preliminary collegiate work in addition to a four year high school education

UTAH		
University of Utah School of Medicine	1910	A
VIRGINIA		
Medical College of Virginia	1915	A
WISCONSIN		
Marquette University School of Medicine	1915	A
University of Wisconsin Medical School	1907	A

The thirty-eight medical colleges† which are now requiring, as a minimum for entrance one year of collegiate work in addition to a four-year high school course, the years when the requirements began and the rating of the colleges are

	In Effect	College Rating
ARKANSAS		
University of Arkansas Medical Department	1915	B
CALIFORNIA		
Oakland College of Medicine and Surgery	1915	B
DISTRICT OF COLUMBIA		
George Washington University Medical School	1914	A
GEORGIA		
Atlanta Medical College	1914	A
University of Georgia Medical Department	1914	A
ILLINOIS		
Loyola University Medical Department	1915	B
Chicago College of Medicine and Surgery	1915	B
Hahnemann Medical College and Hospital of Chicago	1914	B
KENTUCKY		
University of Louisville Medical Department	1914	A
LOUISIANA		
Tulane University of Louisiana School of Medicine	1910	A
MARYLAND		
University of Maryland School of Medicine and College of Physicians and Surgeons	1914	A
MASSACHUSETTS		
Tufts College Medical School	1914	A
MICHIGAN		
Detroit College of Medicine and Surgery	1914	A
MISSISSIPPI		
University of Mississippi Department of Medicine	1914	A
MISSOURI		
St Louis University School of Medicine	1910	A
NEBRASKA		
John A Creighton Medical College	1914	B
NEW YORK		
Albany Medical College	1914	A
Fordham University School of Medicine	1911	A
Long Island College Hospital	1914	A
New York Homeopathic Medical College and Flower Hospital	1915	B
New York Medical College and Hospital for Women	1916	C
University and Bellevue Hospital Medical College	1912	A
University of Buffalo Department of Medicine	1914	A
NORTH CAROLINA		
University of North Carolina School of Medicine	1910	A
OHIO		
Eclectic Medical College	1915	B
OKLAHOMA		
University of Oklahoma School of Medicine	1914	B
OREGON		
University of Oregon Department of Medicine	1910	A
PENNSYLVANIA		
Hahnemann Medical College and Hospital of Philadelphia	1914	A
Jefferson Medical College of Philadelphia	1914	A
Temple University Department of Medicine	1914	B
TENNESSEE		
Vanderbilt University Medical Department	1914	A
University of Tennessee College of Medicine	1914	A
TEXAS		
University of Texas Department of Medicine	1910	A
Baylor University College of Medicine	1913	A
Fort Worth School of Medicine	1916	B
VERMONT		
University of Vermont College of Medicine	1912	A
VIRGINIA		
University of Virginia Department of Medicine	1910	A
WEST VIRGINIA		
West Virginia University School of Medicine	1911	A

The fifteen following medical colleges, now requiring one year of collegiate work for admission, have announced that all students admitted in and after the session given will be required to have completed *two years* of collegiate work

	Session of
University of North Carolina School of Medicine	1917 18
University of Oklahoma School of Medicine	1917 18
Hahnemann Medical College of Philadelphia	1917 18
Jefferson Medical College	1917 18
University of Texas Department of Medicine	1917 18
University of Virginia Department of Medicine	1917 18
West Virginia University School of Medicine	1917 18
Atlanta Medical College	1918 19
University of Georgia Medical Department	1918 19
Tulane University School of Medicine	1918 19
University of Maryland School of Medicine and College of Physicians and Surgeons	1918 19
University of Mississippi Department of Medicine	1918 19
St Louis University School of Medicine	1918 19
Long Island College Hospital	1918 19
University and Bellevue Hospital Medical College	1918 19

The ten following medical colleges either have not announced the higher entrance requirements or evidence has not been received to show they are in effect for all students enrolled

	Rating
College of Physicians and Surgeons, San Francisco	C
Chicago Hospital College of Medicine	C
Jenner Medical College, Chicago	C
College of Physicians and Surgeons, Boston	C
Eclectic Medical University Kansas City	C
Kansas City College of Medicine and Surgery	*
National University of Arts and Sciences, St Louis	C
Southwest School of Medicine and Hospital, Kansas City	C
Lincoln Medical College, Lincoln, Neb	C
University of West Tenn College of Med and Surg, Memphis	C

* This college has not been inspected

State University Medical Schools

Twenty-nine states now have medical schools as integral parts of the state universities or—in one instance—under state control as a separate institution These states and other interesting data regarding the medical schools are as follows

State University Medical Schools

Medical School of State University of	Only School in State	Length of Med Course in Years	Years of College Work for Admission	Medical School of State University of	Only School in State	Length of Med Course in Years	Years of College Work for Admission
Alabama	Yes	4	2†	North Carolina		2	2
Arkansas	Yes	4	1	North Dakota	Yes	2	2†
California		5	2	Ohio*		4	2
Colorado	Yes	4	2†	Oklahoma	Yes	4	2†
Georgia		4	2	Oregon	Yes	4	1
Illinois		4	2	South Carolina	Yes	4	2
Indiana	Yes	4	2†	South Dakota	Yes	2	2†
Iowa*	Yes	4	2†	Tennessee		4	1
Kansas	Yes	4	2	Texas		4	2
Maryland		4	2†	Utah	Yes	2	2
Michigan*		4	2	Vermont	Yes	5	1
Minnesota	Yes	5	2†	Virginia		4	2†
Mississippi	Yes	2	2	West Virginia	Yes	2	2
Missouri		2	2	Wisconsin		2	2†
Nebraska		4	2				

* Have homeopathic departments
† Similar requirements by licensing board

In sixteen states no other medical schools exist, medical education in the state being entirely in charge of the state university

An act of the Maryland legislature in 1914 created a Maryland State University and provided $15,000 per year for 1915 and 1916, to be used for medical education in the state A feature in its development was the merger in 1915 between the University of Maryland School of Medicine and the College of Physicians and Surgeons of Baltimore

Of the twenty-nine state medical schools, twenty-one give the complete medical course and grant degrees while eight give only the first two years of the medical course. California, Minnesota and Vermont require a five-year course, the fifth year to be spent by the student in a hospital as an intern, or in other recognized clinical work The universities of Iowa, Michigan and Ohio have homeopathic departments

All but four of these medical schools require or have announced the requirement of two years of college work for admission, the exceptions being those of Arkansas, Oregon,

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† Colleges will be omitted from this list unless evidence obtained shows that, in the admission of students they are requiring at least thirty semester hours of preliminary collegiate work, in addition to a four year high school education

Tennessee and Vermont Of the twenty-five which have adopted the higher entrance standard eleven have the support of their state licensing boards which have adopted two years of college work as the minimum requirement of preliminary education In some of the remaining states the licensing boards do not appear to be in sympathy with the higher requirement

Hospital Intern Year

Six medical colleges have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M D degree will be granted These colleges and the sessions when the requirement became effective are as follows

	Session of
University of Minnesota Medical School	1910 11
Leland Stanford Jr University School of Medicine	1914 15
Rush Medical College (University of Chicago)	1914 15
University of California Medical School	1914 15
Northwestern University Medical School	1915 16
University of Vermont College of Medicine	1915 16

Four state licensing boards now require that every candidate to be eligible for license to practice medicine in those states must have served at least one year as an intern in an approved hospital The requirement became effective in Pennsylvania in 1914, in New Jersey in 1916, and will become effective in Rhode Island in 1917 and in North Dakota in 1918

Graduate Schools of Medicine

Graduate schools have been organized in connection with six universities as follows

University of Alabama Graduate School of Medicine	Birmingham
University of California Graduate School of Medicine	Los Angeles
Tulane University The New Orleans Polyclinic	New Orleans
Harvard University Graduate School of Medicine	Boston
University of Minnesota Graduate School of Medicine	Minneapolis
University of Pennsylvania The Medico Chirurgical College	Philadelphia

Independent graduate (or postgraduate) medical schools which have been inspected by the Council on Medical Education are

Chicago Policlinic	Chicago
Post Graduate Medical School	Chicago
New York Post Graduate Medical School	New York City
New York Policlinic Medical School	New York City
Manhattan Post Graduate School of Ophthalmology Otology and Laryngology	New York City
School of Ophthalmology and Otology	New York City
Philadelphia Polyclinic	Philadelphia

Graduate Courses in Public Health

Graduate courses in public health have been established in connection with ten medical schools, the first of which was established at the University of Pennsylvania in 1909, the latest is that recently announced in connection with the Medical Department of Johns Hopkins University and the details of the course have not yet been published Of the other nine the facts set forth in the accompanying table are interesting

Seven of these schools give the degree of Doctor of Public Health (Dr P H), three after a two-year course and four after a one-year course The degree of Certified Sanitarian (C S), after a one-year course, is given by the University of Pennsylvania to graduates of colleges of arts and sciences The degree of Master of Public Health (M P H) is given after a one-year course by the Detroit College of Medicine and Surgery and the University of Wisconsin Medical School The Master of Arts in Public Health (A M (P H)) or the Master of Science in Public Health (M S (P H)) is given by three institutions The Master of Science in Sanitary Engineering is given after a one-year course by the University of Colorado to students who have received the degree of B S in engineering from that institution Instead of the degree of public health, the University of California gives the degree of Graduate in Public Health (Gr P H) *The University of California offers three courses leading to* the degree of Graduate in Public Health

(a) A four-year course beginning with the junior college year and covering three additional years in the College of Letters and Science and one year in the Medical School

(b) A two-year course, one year in the College of Letters and Science and one year in the Medical School, for graduates of the College of Civil Engineering who have completed the undergraduate curriculum in sanitary engineering

(c) *A course in one and one-half years, one year in the* College of Letters and Science and one-half year in the Medical School, for students who have completed three and one-half years of the medical curriculum The completion of this course gives the degrees of M D and Graduate in Public Health

Altogether 68 degrees in public health were granted including 52 Graduates or Doctors of Public Health and 16 Masters of Arts in Public Health, Masters of Science in Public Health Masters of Public Health and Certified Sanitarians Certificates of Public Health were issued to 15 individuals after a one-year course The total number of certificates issued on a course less than one year has not been recorded

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are as follows

Section 1 —Every college holding membership in this Association shall on and after Jan 1 1914 require for matriculation a completed or unconditioned medical student s certificate to be granted by a state medical examining and licensing board or a board empowered by statute to grant such certificates, or a certificate of entrance to the academic department of any state university or a certificate of entrance to an accredited university or college providing that said certificate is granted on no less than the following requirements

(a) A diploma and transcript of record from a fully accredited high school normal school or academy requiring for admission evidence

Graduate Courses in Public Health

Name of College	Degrees in Health	Course Began	Years in Course	Instruction	Total Fees Dollars	Thesis Required	Prerequisite College Work Required	Total No of Degrees Granted
University of California Medical School	Cert P H	1914	1	30	150	Yes	B L or B S	2
University of California Medical School	M A (P H)	1915	1	30	150	Yes	A B or B S	1
University of California Medical School	Gr P H	1915	2	20	300	Yes	A B B S or M D	5
University of Colorado School of Medicine	Cert P H	1913	*	20			M D	
University of Colorado School of Medicine	M S (San Eng)	1913	1	20	50	Yes	B S (Eng)	
University of Colorado School of Medicine	M S (P H)	1913	1	20	50	Yes	A B or B S	1
University of Colorado School of Medicine	Dr P H	1913	2	20	100	Yes	A B B S or M D	
Tulane University College of Medicine	Dr P H	1912	1	16	205	Yes	M D	4
Tulane University College of Medicine	Cert P H	1912	⅓	16	85		M D	(many)
Harvard University Medical School	Dr P H	1910	1	59	150	Yes	A B and San Eng or M D	13
Harvard University Medical School	Cert P H	1912	1	59	250		San Eng and M D	13
University of Michigan Medical School	M S (P H)	1913	1	7	67	Yes	A B B S or M D	6
University of Michigan Medical School	Dr P H	1913	2	7	124	Yes	A B , or B S and M D	2
Detroit College of Medicine and Surgery	M P H	1913	1	11	80		M D	2
University and Bellevue Hospital Med Coll	Cert P H	1914	6 wks	35	50		M D	
University and Bellevue Hospital Med Coll	Dr P H	1914	1	35	205	Yes	M D	
University of Pennsylvania School of Medicine	Dr P H	1909	1	14	150	Yes	M D	26
University of Pennsylvania School of Medicine	C S	1909	1	14	150		A B or B S	2
University of Wisconsin Medical School	Dr P H	1911	2	8	350	Yes	M D	2
University of Wisconsin Medical School	M P H	1911	1	8	175	Yes	M D	4

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* This is a course for practicing physicians covering six weeks in each of four years—a total of twenty four weeks

A new School of Public Health has just been established at Johns Hopkins University Medical Department the details have not been published of the completion of a standard course in primary and intermediate grades, and for graduation, the completion of a standard four year high school course, embracing two years (2 units) of mathematics two years (2 units) of English, two years (2 units) of one foreign language, one year (1 unit) of history and civics, and seven years (7 units) of further credit in language, literature, history or science making the total of units at least fourteen, and in addition, one year each of physics, chemistry, biology and French or German of college grade of each not less than eight semester hours

(Note A recommendation was endorsed by the Association, at its 1916 meeting, that on and after Jan 1, 1918, two years of college work, including these required subjects, shall be the admission requirement. This recommendation will be voted on as an amendment at the 1917 annual meeting)

(b) For the high school requirement an examination in the following branches totaling 14 units

(A) Required, 7 units

	Units
Mathematics (minimum 2 years, maximum 3 years), algebra and plane geometry	2
English (minimum 2 years maximum 4 years)	2
One foreign language (minimum 2 years, maximum 4 years)	2
History and civics	1
Total number of required units	7

(B) Elective, 7 units
To be selected from the following

	Units
English language and literature (in addition to the required work)	1 to 2
Foreign languages additional, Latin, German, Italian, French, Spanish or Greek (not less than 1 year in any one)	1 to 4
Advanced mathematics, advanced algebra, solid geometry and trigonometry (½ year each)	1
Natural science chemistry 1 year, physics 1 year, and biology, botany, physiology and zoology (½ to 1 year each)	½ to 2
Earth science, physical geography, geology and agriculture (½ year to 1 year each)	½ to 1
Astronomy (½ year)	½
Drawing (½ to 1 year)	½ to 1
History, ancient, medieval and modern, and English (1 year each)	1 to 3
Economics (½ year)	½
Manual training (1 year)	1
Bookkeeping (½ to 1 year)	½ to 1

One unit in any subject is the equivalent of work in that subject for four or five periods per week for a year of at least thirty six weeks, periods to be not less than forty five minutes in length One unit is equivalent to 2 semester credits or 2 points

THE PRELIMINARY COLLEGE YEAR

(The requirements of the preliminary college year are the same as set forth in the standard of the Council on Medical Education on page 700 The standard was adopted April, 1915, by a joint committee representing the two organizations After Jan 1, 1917, the requirement in physics shall be 8 semester hours of college work, of which at least two are laboratory, or 96 hours of didactic plus 64 hours of laboratory, in periods of not less than two hours each)

Sec 2 —The examination of credentials must be conducted by and under the authority of the board of medical examiners of the state in which the college is located, or by a duly authorized examiner of the college entrance examination board, or the authorized examiner of an accredited university, state or otherwise, or by an examiner whose certificates are accepted by accredited colleges or universities, or by a method approved by the judicial council of this association

Sec 3 —The term "accredited" as applied to high schools, academies, colleges and universities means institutions of that type that have been investigated and are accredited by the state university of their respective states, by the North Central Association of Colleges and Secondary Schools, the Association of Colleges and Preparatory Schools of the Southern States, the Association of Colleges and Preparatory Schools of the Middle States and Maryland, the New England College Entrance Certificate Board the Association of American Universities and the Association of State Universities, provided that such accrediting is based on Article III, Section 1, of this constitution

Sec 4 —Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of the course, but no member of this Association shall admit a student to advanced standing without receiving from the dean, secretary or registrar of such college a direct written communication certifying to the applicant's standing Credit for time or scholarship cannot be given beyond that of the college issuing the credentials, except by mutual agreement between the colleges

Sec 5 — Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty two teaching weeks' duration, and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course

Sec 6 —No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination Four years of residence in a medical college shall be required of all candidates for the degree of Doctor of Medicine

Sec 7 —A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership

Sec 8 —Each student shall be obliged to attend not less than 80 per cent of the exercises in every annual course of study for which he seeks credit No student shall be given credit on examination unless he attains a grade of at least 70 per cent or its equivalent in any other marking system And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum

Curriculum

Section 1 —The entire course of four years shall consist of at least 4,000 hours for each student, and shall be grouped in divisions and subdivided into subjects, each division and subject to be allotted the number of hours as shown in the following schedule

Division 1 —Anatomy, 720 Hours (18 per Cent)

	Hours	Lect. Rec	Dem	Lab Wk
(a) Gross anatomy (including applied anatomy)	510	120		390
(b) Histologic and microscopic anatomy	135	30		105
(c) Embryology	75	30		45

Division 2 —Physiology and Chemistry, 600 Hours (15 per Cent)

	Hours	Lect. Rec	Dem	Lab Wk
(a) Inorganic chemistry	180	60		120
(b) Organic chemistry	75	30		45
(c) Physiologic chemistry	104	30		75
(d) Physiology	240	140		100

Division 3 —Pathology, Bacteriology and Hygiene, 450 Hours (11 25 per Cent)

	Hours	Lect. Rec	Dem	Lab Wk
(a) Bacteriology	135	30		105
(b) Hygiene and general dietetics	45	45		
(c) Pathology	270	60		210

Division 4 —Pharmacology, Materia Medica and Therapeutics, 240 Hours (6 per Cent)

	Hours	Lect Rec	Dem	Lab Wk
(a) Pharmacology	105	40		65
(b) Materia medica and pharmacology	80			
(c) Therapeutics	55			

Division 5 —Medicine and Medical Specialties, 970 Hours (24 25 per Cent.)

	Hours	Lect Rec	Dem	Lab Wk
(a) General medicine (including clinical microscopy)	640			
(b) Pediatrics	150			
(c) Nervous and mental diseases	105			
(d) Jurisprudence ethics and economics	30			
(e) Dermatology and syphilis	45			

Division 6 —Surgery and Surgical Specialties, 720 Hours (18 per Cent)

	Hours	Lect Rec	Dem	Lab Wk
(a) General surgery	510			
(b) Orthopedic surgery	45			
(c) Genito urinary diseases	45			
(d) Eye	60			
(e) Ear, nose and throat	60			

Division 7 —Obstetrics and Gynecology, 300 Hours (7 5 per Cent)

	Hours	Lect Rec	Dem	Lab Wk
(a) Obstetrics	195			
(b) Gynecology (including some abdominal surgery)	105			

Colleges may reduce the number of hours in any subject not more than 20 per cent provided that the total number of hours in a division is not reduced Where the teaching conditions in a college are best subserved, the subject may be, for teaching purposes transferred from one division to another When didactic and laboratory hours are specified in any subject, laboratory hours may be substituted for didactic hours

(Note —At the 1916 meeting the Committee on Education and Pedagogics was instructed to revise this curriculum to meet the present requirements)

Sec 2 —Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college arranged both by subjects and years

Sec 3 —Each college in membership in this Association shall print annually a list of its students by classes

MEMBERS OF ASSOCIATION

University of Alabama, School of Medicine
Leland Stanford Junior University, School of Medicine.
University of California Medical School
University of Southern California Medical Department
University of Colorado, School of Medicine
Yale University School of Medicine
Georgetown University, School of Medicine
George Washington University Medical School
Howard University, School of Medicine
University of Georgia, Medical Department
Northwestern University Medical School
Rush Medical College
University of Illinois College of Medicine
Indiana University, School of Medicine
State University of Iowa, College of Medicine
University of Kansas School of Medicine
University of Louisville, Medical Department
Tulane University of Louisiana, School of Medicine

College of Physicians and Surgeons Baltimore
Johns Hopkins University Medical Department
University of Maryland School of Medicine
Medical School of Harvard University
Tufts College Medical School
Detroit College of Medicine and Surgery
University of Michigan Medical School
University of Minnesota Medical School
University of Mississippi Department of Medicine
St Louis University School of Medicine
University of Missouri School of Medicine
Washington University Medical School
John A Creighton Medical College
University of Nebraska College of Medicine
Columbia University College of Physicians and Surgeons
Cornell University Medical College.
Syracuse University College of Medicine
University and Bellevue Hospital Medical College
University of Buffalo Medical Department
University of North Carolina School of Medicine
Wake Forest College School of Medicine
University of North Dakota School of Medicine
University of Cincinnati College of Medicine
Ohio State University College of Medicine
Western Reserve University School of Medicine
University of Oklahoma School of Medicine
Hahnemann Medical College and Hospital of Philadelphia
University of Pennsylvania School of Medicine
University of Pittsburgh School of Medicine
University of the Philippines College of Medicine and Surgery
Medical College of the State of South Carolina
Meharry Medical College (Affiliated Member)
University of Tennessee College of Medicine
Vanderbilt University Department of Medicine
University of Texas Department of Medicine
University of Vermont College of Medicine
Medical College of Virginia
Marquette University School of Medicine
University of Wisconsin Medical School

The secretary-treasurer of the Association is Dr Fred C Zapffe, 3431 Lexington Street, Chicago

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine several of which do not grant degrees The name address year of organization history and date when first class graduated are given in each instance Unless otherwise stated, a class graduated each subsequent year Where official reports have been received from the college, information regarding faculty entrance requirements, length of term fees students (excluding specials and postgraduates) graduates name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not In a few instances in which such reports were not received the information published is from other reliable sources Figures for graduates include all who graduated since July 1 1915 Extracts of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges Figures showing population of cities and states are taken from the United States Census Bureau's estimate for 1915 Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of collegiate work Four states New Jersey, North Dakota, Pennsylvania and Rhode Island require a year's hospital internship before a license will be granted

ALABAMA

Alabama population 2,301 277, has one medical college the School of Medicine of the University of Alabama, located in Mobile a city with a population of 56 536

In order to secure licenses to practice medicine in Alabama students matriculating in the session of 1915-16 and thereafter, must have completed *two years* of work in an approved college of liberal arts including courses in physics chemistry biology and a modern language, prior to entering on the study of medicine

Mobile

University of Alabama School of Medicine St Anthony and Lawrence Streets—Organized in 1859 as the Medical College of Alabama Classes were graduated in 1861 and in all subsequent years except 1862 to 1868 inclusive It was reorganized as the Medical Department of the University of Alabama in 1897 All property was transferred to the University of Alabama in 1907, when the present title was assumed Two years of college work are required for admission The faculty consists of 15 professors and 27 lecturers and assistants a total of 42 The course of study covers four years of thirty two weeks each The total fees for each of the four years respectively, are $160 $155 $155 and $175 The Dean is Dr T H Frazer The total registration for 1915 16 was 56, graduates 18 The fifty first session begins Oct 5 1916, and ends June 5 1917

ARKANSAS

Arkansas population 1,713,102, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 55,158

To secure licenses to practice medicine in Arkansas, students matriculating in the session of 1915-16 and thereafter must have completed at least one year of collegiate work including college courses in physics, chemistry biology and a modern language before beginning the study of medicine This applies to all graduates of 1919 and thereafter

Little Rock

University of Arkansas Medical Department, Markham and Center Streets—Organized in 1879 as the Medical Department of Arkansas Industrial University It assumed the present title in 1899 In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas The first class was graduated in 1880 The faculty consists of 15 professors and 48 lecturers and assistants total 63 Entrance requirements are a year of collegiate work beyond a four year high school course The course of study covers four years of thirty two weeks each The fees are $125 for each of the first three years and $150 for the fourth year The Dean is Dr Morgan Smith Total registration 1915 16 was 56 graduates 16 The thirty eighth session begins Sept 18 1916 and ends May 31 1917

CALIFORNIA

California population 2,848,275, has seven medical colleges Three are located in San Francisco a city of 448,502 inhabitants They are Leland Stanford Junior University School of Medicine College of Medicine of the University of California, the College of Physicians and Surgeons and the Hahnemann Medical College of the Pacific The College of Physicians and Surgeons, Medical Department of the University of Southern California is situated in Los Angeles population 465,367 The Oakland College of Medicine and Surgery is in Oakland, population 190,803 The College of Medical Evangelists is located at Loma Linda, a village of 110 people

To secure licenses to practice medicine in California under the 'physician s and surgeon's" certificate, students matriculating in medical colleges in and after the session of 1915-16, prior to such matriculation, must have completed at least one year of recognized collegiate work including college courses in physics chemistry biology and a modern language This applies to all graduates of 1919 and thereafter

Berkeley-San Francisco

University of California Medical School University Campus, Berkeley Second and Parnassus Avenues, San Francisco—Organized in 1863 as the Toland Medical College The first class graduated in 1865 In 1872 it became the Medical Department of the University of California In 1909 the College of Medicine of the University of Southern California at Los Angeles, by legislative enactment became a clinical department This Los Angeles portion was changed to a graduate school in 1914 In 1915 the Hahnemann Medical College of the Pacific was merged and elective chairs in homeopathic materia medica and therapeutics were provided for *Two years* of collegiate work are required for admission The work of the first year and a half is given at Berkeley and the work of the last two and a half years at San Francisco The faculty is composed of 31 professors and 99 associates and assistants a total of 130 The course covers five years of nine months each the fifth year to consist of an internship or of special work in a department of the medical school Fees for the four years respectively are $190 $190 $167 and $167 The Dean is Dr Herbert C Moffitt San Francisco Total registration for 1915 16 was 124 graduates 29 The forty fourth session begins Aug 18 1916 and ends May 16 1917

Loma Linda-Los Angeles

College of Medical Evangelists—Organized in 1909 The faculty numbers 55 The first class graduated in 1914 The course extends over four years of nine months each *Two years* of college work are required for admission The total fees each year are $136 matriculation fee $5 payable but once graduation fee $10 President is Dr Newton Evans The total registration for 1915 16 was 51 graduates 9 The eighth session begins Sept 11 1916 and ends May 31 1917

Los Angeles

College of Physicians and Surgeons Medical Department of the University of Southern California 516 East Washington Street—Organized in 1903 first class graduated in 1905 became Medical Department University of Southern California Aug 11 1909 The course covers four years of nine months each *Two years* of collegiate work are required for admission The faculty consists of 22 professors and 74 associate professors lecturers and instructors a total of 96 The fees for the four years respectively are $220 $217 $202 and $227 The

Dean is Dr Charles W Bryson The registration for 1915 16 was 143, graduates, 23 The next session begins Sept 5, 1916, and ends June 7, 1917

Oakland

Oakland College of Medicine and Surgery, Thirty First and Grove Streets—Organized in 1900 opened in 1902 The first class graduated in 1906 The faculty numbers 45 The course covers four years of nine months each, and the classes are limited to ten students each The total fees for each of the four years, respectively, are $195, $190, $150 and $150 The Registrar is Dr Edward N Ewer The total registration for 1915 16 was 13, graduates, 2 The fifteenth session begins Aug 21, 1916, and ends June 1, 1917

San Francisco

College of Physicians and Surgeons, 344 Fourteenth Street—Organized in 1896 The first class graduated in 1897 The faculty numbers 28 The course covers four years of nine months each The fees for each of the four years, respectively, are $165, $160, $160 and $185 The Dean is Dr L W Spriggs Registration for 1915 16 was 63, graduates, 9 The twentieth session begins Sept 4, 1916, and ends June 7, 1917 *Reported not recognized by licensing boards of thirty three states*

San Francisco-Palo Alto

Leland Stanford Junior University School of Medicine, University Campus, Palo Alto, and Sacramento and Webster Streets, San Francisco—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over The faculty consists of 46 professors and 52 lecturers assistants etc, a total of 98 Three years of collegiate work are required for admission The course covers five years of nine months each, including a year of practical or intern work The total fees for the first four years, respectively are $160, $155, $150 and $150 The Dean is Dr W Ophüls, San Francisco The total registration for 1915 16 was 96, graduates 24 The seventh session begins Aug 30, 1916, and ends May 16, 1917

COLORADO

Colorado, with a population of 935,799, has one medical college, the University of Colorado School of Medicine The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 253,161

The Colorado State Board of Medical Examiners will register without further examination graduates of medical colleges in good standing who present licenses issued after examination by any other licensing board The law permits any one, graduate or non-graduate, to try the Board's written examination No graduate of 1914 or thereafter is eligible to obtain a license in Colorado, on indorsement of his credentials, unless he graduated from a medical college which, at the time he matriculated, required at least *two years'* study, without conditions, in an accredited college of liberal arts, and this work must have included courses in physics, chemistry, biology and one modern language

Boulder-Denver

University of Colorado School of Medicine—Organized in 1883 Classes were graduated in 1885 and in all subsequent years except 1898 and 1899 Denver and Gross College of Medicine was merged Jan 1, 1911, when the legal right to teach the last two or clinical years in Denver was secured The faculty embraces 56 professors and 30 lecturers and assistants, a total of 86 The work embraces a graded course of four years of nine months each The entrance requirements are *two years* of college work counting toward a degree in arts in an accredited college or university The tuition is $75 per year for residents of Colorado, $100 for non residents There are laboratory fees of $10 for each of the first two years The Dean is Dr Charles N Meader The total registration for 1915 16 was 79, graduates, 13 The thirty fifth session begins Sept 11, 1916, and ends June 6, 1917

CONNECTICUT

Connecticut, with a population of 1,223,583, has one medical college, Yale University, School of Medicine, located in New Haven, population 147,095

Candidates for license to practice medicine in Connecticut, who graduate in 1914 or thereafter are not eligible unless, prior to *entering on the study* of medicine they had completed, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology

New Haven

Yale University School of Medicine, 150 York Street and Congress Avenue and Cedar Street—Chartered in 1810 as the Medical Institution of Yale College Organized in 1812, instruction began in 1813, first class graduated in 1814 A new charter in 1879 changed the name to the Medical Department of Yale College In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter In 1887 Yale College became Yale University The faculty consists of 24 professors and 50 lecturers and assistants, a total of 74 The requirements for admission is *two full years* of collegiate work plus evidence of satisfactory completion of courses in general physics, general inorganic chemistry, general biology, organic chemistry and physical chemistry or laboratory physics, all reasonably equivalent to th [illegible] in these subjects in Yale University The student also must have a reading knowledge of German The course covers four years of nine months each The fees for the four years, respectively are approximately $195, $165, $150 and $163 The Dean is Dr George Blumer The total registration for 1915 16 was 58 graduates, 6 The one hundred and fourth session begins Sept 28, 1916, and ends June 20, 1917

DISTRICT OF COLUMBIA

The District of Columbia, population 358,679, has three medical colleges, George Washington University Medical School, Georgetown University, School of Medicine and Howard University, School of Medicine

Washington

George Washington University Medical School 1325 H Street, N W—Organized in 1825 as the Medical Department of Columbian College Also authorized to use the name National Medical College Classes were graduated in 1826 and in all subsequent years except 1834 to 1838 and 1861 to 1863 inclusive The original title was changed to Medical Department of Columbian University in 1873 In 1903 it absorbed the National University Medical Department In 1904, by an act of Congress, the title of George Washington University was granted to the institution The faculty is composed of 23 professors and 62 instructors, demonstrators and assistants, a total of 85 One year of collegiate work is required for admission The course covers four years of thirty two weeks each The total fees for the four years, respectively, are $168, $169, $163 and $163 The Dean is Dr William C Borden The total registration for 1915 16 was 141, graduates, 27 The ninety fifth session begins Sept 27, 1916, and ends June 6, 1917

Georgetown University School of Medicine, 920 H Street, N W—Organized in 1851 The first class graduated in 1852 The faculty contains 24 professors 67 instructors and assistants, total, 91 *Two years* of collegiate work are required for entrance The course of study covers four terms of eight and one half months each The fees for the first year are $165, and for each of the other three years $150 The Dean is Dr George M Kober The registration for 1915 16 was 53 graduates, 7 The sixty sixth session begins Sept 24, 1916, and ends June 13, 1917

Howard University School of Medicine, Fifth and W Streets N W—Chartered in 1867 Organized in 1869 The first class graduated in 1871 Colored students compose a majority of those in attendance The faculty comprises 18 professors and 21 lecturers and assistants, 39 in all The admission requirements are *two years* of collegiate work including physics, chemistry, botany and zoology and a reading knowledge of one modern language besides English The course covers four years of thirty two weeks each The fees of each of the four sessions, respectively, are $137, $127, $127 and $134 The Dean is Dr Edward A Balloch Registration for 1915 16 was 100, graduates 15 The forty ninth session begins Oct 2, 1916, and ends June 6, 1917

GEORGIA

Georgia, population 2,816,289, has two medical colleges, University of Georgia, Medical Department, located in Augusta, population 49,848, and the Atlanta Medical College in Atlanta, a city of 184,873 population

Atlanta

Atlanta Medical College Medical Department of Emory University Butler and Armstrong Streets—Organized in 1854 Classes graduated 1855 to 1861, when it suspended Reorganized in 1866 A class graduated in 1865 and each subsequent year except 1874 In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming its first title Became the Medical Department of Emory University in 1915 One year of collegiate work is required for entrance, two years will be required for the session of 1918 19 and thereafter It has a faculty of 31 professors and 70 instructors, assistants, etc, a total of 101 The course of study is four years of thirty two weeks each The fees are $150 each year The Dean is Dr W S Elkin Total registration for 1915 16 was 232 graduates, 101 The next session begins Sept. 25, 1916, and ends May 30, 1917

Augusta

University of Georgia Medical Department, University Place—Organized in 1828 as the Medical Academy of Georgia the name being changed to the Medical College of Georgia in 1829 Since 1873 it has been known as the Medical Department of the University of Georgia Entire property transferred to the University in 1911 Classes were graduated in 1833 and in all subsequent years except 1862 and 1863 The faculty includes 18 professors and 30 assistants 48 in all One year of collegiate work is required for entrance, two years will be required for the session of 1918 19 and thereafter The course is four years of thirty four weeks each Fees are $150 each year for non residents of Georgia, for residents the fees for the four years respectively are $55, $50, $55 and $60 The Dean is Dr W H Doughty, Jr The total registration for 1915 16 was 54, graduates, 10 The eighty fifth session begins Sept 14, 1916, and ends May 30, 1917

ILLINOIS

Illinois, population 6,069,519, has eight medical colleges, two of which give instruction at night, all located in Chicago, a city of 2,447,045 inhabitants, and are as follows Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College and Hospital, Loyola University School of Medicine, Chicago College of Medicine and Surgery, Jenner Medical College and the Chicago Hospital College of Medicine

To be eligible for license to practice medicine in Illinois, students matriculating in the session of 1915-16 and thereafter, in addition to an accredited four-year high school education, must have completed at least a year of collegiate work including courses in physics, chemistry, biology and a modern language, to be taken either in a preliminary year given by a recognized medical college, or in an approved college of liberal arts

Chicago

Rush Medical College—This school was founded in 1837, organized in 1843 was the medical department of Lake Forest University from 1887 until 1898 when it became affiliated with the University of Chicago The first class graduated in 1844 The faculty is composed of 108 professors 193 associates instructors etc a total of 301 The requirements for admission are *two years* of college work, including courses in college chemistry, physics and biology and a reading knowledge of German or French Classes are limited to 100 students in each of the freshman and sophomore classes and to 120 students in each of the clinical years No application for admission is accepted after September 1 The course covers four years of eight and a half months each and a fifth year, consisting of a hospital internship or of a fellowship in one of the departments All freshmen and sophomore studies are given at the University of Chicago The clinical years are given in the building at the corner of Wood and Harrison Streets The tuition fees are $180 each year A matriculation fee of $5 is paid but once and there are incidentals amounting from $3 to $10 annually The Dean is Dr John M Dodson Total registration 1914 15 was 488 graduates 97 The seventy third session begins Oct 1 1915 and ends June 17 1916

Northwestern University Medical School 2431 South Dearborn Street—Organized in 1859 as the Medical Department of Lind University First class graduated in 1860 In 1864 it became independent as the Chicago Medical College It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present name was taken Became an integral part of Northwestern University in 1905 The faculty comprises 54 professors and 70 lecturers and assistants a total of 124 The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus *two years* of college work including courses in physics chemistry biology and a modern language The course covers four years of eight months each The fees for the four years, respectively are $190 $195, $190 and $206 The Dean is Dr Arthur R Edwards The total registration for 1915 16 was 236 graduates 42 The fifty seventh session begins Oct 3 1916 and ends June 2 1917

University of Illinois College of Medicine Honore and Congress Streets—Organized in 1882 as the College of Physicians and Surgeons The first class graduated in 1883 It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910 The relationship with the university was canceled in June 1912 but restored in March 1913 when the present title was assumed The American Medical Missionary College was absorbed in 1910 *Two years* of collegiate work are required for admission The faculty is composed of 55 professors 90 assistants and instructors a total of 145 The total fees for the four years respectively are $155 $160 $150 and $165 The Dean is Dr D A K Steele Total registration for 1915 16 was 227 graduates 110 The thirty fifth session begins Sept 28 1916, and ends June 13 1917

Chicago College of Medicine and Surgery 706 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College) The latter part of the name was dropped in 1902 and it became the Medical Department of Valparaiso University Eclecticism was dropped in 1905 The name was changed to the above in 1907 One year of collegiate work including courses in physics chemistry, biology and a modern language is required for admission The course covers four years of eight months each The faculty numbers 167 The total fees of each of the four years are $155 The Secretary is Dr G E Wyneken The total registration for 1915 16 was 488 graduates 194 The sixteenth session begins Sept 26 1916 and ends May 27 1917

Hahnemann Medical College and Hospital of Chicago 2811 Cottage Grove Avenue—Organized in 1859 The first class was graduated in 1861 Absorbed the Chicago Homeopathic Medical College in 1904 The faculty includes 57 professors and 26 lecturers assistants etc, a total of 83 One year of collegiate work including courses in physics chemistry and biology and a modern language is required for admission *Two years* of collegiate work will be required in the session of 1918 19 and thereafter The course extends over four years of eight months each The tuition fees for the four years respectively are $171 $161 50 $176 50 and $191 50 The Dean is Dr Joseph P Cobb The total registration for 1915 16 was 85 graduates 18 The fifty seventh session begins Sept 25 1916 and ends June 7 1917

Loyola University School of Medicine Fulton and Ada Streets—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery Dropped Eclecticism and became Bennett Medical College in 1909 In 1910 it absorbed the Illinois Medical College The first class graduated in 1870 Became an integral part of Loyola University in 1915 Present title in 1916 The faculty numbers 85 The course covers four years of thirty two weeks each One year of collegiate work required for admission, including courses in physics chemistry and biology The fees are $150 each year The Secretary is Dr Alfred de Roulet The total registration for 1915 16 was 308, graduates 142 The next session begins Sept 25 1916 and ends June 18 1917

Jenner Medical College an afternoon and night school located at 701 South Wood Street—Organized in 1892 Classes were graduated in 1896 and in all subsequent years Total registration for 1915 16 was 98 graduates 15 *Reported not recognized by the licensing boards of thirty two states*

Chicago Hospital College of Medicine another afternoon and night school located at 3832 Rhodes Avenue—Organized in 1911 chartered in 1912 Claimed to have had a registration of about 60 in 1914 15 There were 9 graduates *Official reports indicate that the diplomas from this college are not recognized by the licensing boards of thirty two states*

INDIANA

Indiana population 2 798 142, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 265,578 people, except that the work of the first year is offered also at Bloomington, the seat of the University

Candidates for license to practice medicine in Indiana who matriculated between Jan 11, 1910, and Jan 1, 1911, must have completed one year of collegiate work, in addition to an accredited four-year high school course, prior to beginning the study of medicine Those matriculating subsequent to Jan 1, 1911, must have completed *two years* of work in a recognized college of liberal arts

Bloomington and Indianapolis

Indiana University School of Medicine—Organized in 1903 but did not give all of the work of the first two years of the medical course until 1905 In 1907 by union with the State College of Physicians and Surgeons the complete course in medicine was offered In 1908 the Indiana Medical College which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879) and the Fort Wayne College of Medicine (organized in 1879) merged into it The first class was graduated in 1908 The faculty consists of 74 professors and 63 lecturers, associates and assistants a total of 137 *Two years* of collegiate work are required for admission The work of the first year is emphasized only at Bloomington The work of the other three years is all at Indianapolis The fees for the four years respectively are $100 $100 $130 and $130 A fifth optional year leading to the M D cum laude' has been added The Secretary at Bloomington is Dr B D Myers the Dean is Dr Charles P Emerson Indianapolis The total registration for 1915 16 was 156 graduates 34 The next session begins Sept 18 1916 and ends June 13, 1917

IOWA

Iowa population 2,221,038, has two medical colleges The College of Medicine and the College of Homeopathic Medicine of the State University of Iowa, both located in Iowa City population 11 200

Candidates for license to practice medicine in Iowa who graduate subsequent to Jan 1 1915, must have completed *two years* of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry, biology and a foreign language

Iowa City

State University of Iowa College of Medicine University Campus—Organized in 1869 First session began in 1870 First class graduated in 1871 Absorbed Drake University College of Medicine in 1913 The faculty is made up of 27 professors 27 lecturers demonstrators and assistants a total of 54 *Two years* of collegiate work including courses in physics chemistry biology and French or German are required for admission The course of study covers four years of thirty six weeks each The tuition fee for residents of Iowa is $85 per year and for nonresidents $100 plus a matriculation fee of $10 and a graduation fee of $10 The Dean is Dr Lee Wallace Dean Iowa City Total registration for 1915 16 was 151 graduates 29 The forty seventh session begins Sept 18 1916 and ends June 13 1917

State University of Iowa College of Homeopathic Medicine—Organized in 1877 The first class graduated in 1878 Class each subsequent year except 1914 The faculty is composed of 15 professors and 12 lecturers and assistants a total of 27 The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa and it has the same entrance requirements The fees are $100 each year for nonresidents of Iowa and $85 for residents plus a matriculation fee of $10 paid but once and a graduation fee of $10 The Dean is Dr George Royal Total registration for 1915 16 was 10 graduates 0 The thirty ninth session begins Sept 18 1916 and ends June 13 1917

KANSAS

Population 1 807,221 has one medical college The School of Medicine of the University of Kansas gives its first two years in Lawrence population 12 915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 392 693

Candidates for license to practice medicine in Kansas who matriculated in the session of 1910-11 and thereafter must present credentials showing that they matriculated in and graduated from a medical college which required for admission at least one year of collegiate work including college courses in physics chemistry and biology in addition to an accredited four-year high school course. This applies to graduates of 1914 and thereafter

Lawrence and Rosedale

University of Kansas School of Medicine—Organized in 1880 It offered only the first two years of the medical course until in 1905 when it merged with the Kansas City (Mo) Medical College founded in 1869 the College of Physicians and Surgeons founded in 1894 and the Medico Chirurgical College, founded in 1897 *First class graduated* in 1906 The clinical courses are given at Rosedale Absorbed Kansas Medical College in 1913 The faculty, including lecturers and clinical assistant, numbers 61 The requirements for admission are *two years* of collegiate work *The course covers four years* of nine months each The total fees are for each of the first two years, $30 per year (and *for nonresidents* of the state, $45), for the last two years $100 and $105, respectively The Dean is Dr S J Crumbine, Associate Dean, Dr M T Sudler The total registration for 1915 16 was 105, graduates, 11 The thirty seventh session begins Sept 14, 1916, and ends June 6, *1917*

KENTUCKY

Kentucky, *population* 2,365,185, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 237,012 inhabitants

To be eligible for license to practice medicine in Kentucky all students matriculating in and after the session of 1914-15 must have completed, in addition to an accredited four-year high school course, at least one year's work in an approved college of liberal arts, including college courses *in physics*, chemistry, biology and a *modern* language

Louisville

University of Louisville Medical Department First and Chestnut Streets—Organized in 1837 as the Louisville Medical Institute The first class graduated in 1838, and a class graduated in each subsequent year except in 1863 In 1846 the present name was assumed In 1907 it absorbed the Kentucky University Medical Department In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine One year of collegiate work is required for admission It has a faculty of 34 professors and 68 lecturers and assistants, a total of 102 The course covers four years of thirty two weeks each The fees are $175 each year, graduation fee, $10 The Dean is Dr Henry Enos Tuley The total registration for 1915 16 was 149, graduates, 54 The next session begins Sept 26, 1916, and ends June 7, 1917

LOUISIANA

Louisiana, having a population of 1,801,306, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of *366,484*

Candidates for license to practice medicine in Louisiana who graduate *in 1919* and thereafter *must present* evidence that they had successfully completed, at an approved college or university at least one year of work including biology, physics, chemistry and a modern language, before entering on the study of medicine This applies to all students who matriculated in 1915 and thereafter

New Orleans

Tulane University of Louisiana School of Medicine, University Campus and 1551 Canal Street—Organized in 1834 as the Medical College of Louisiana Classes were graduated *in 1835 and in* all subsequent years, except 1863 65, inclusive It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical *Department of the Tulane University* of Louisiana in 1884 Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana The faculty has 24 professors and 89 assistant professors, instructors, demonstrators, etc, a total of 113 The course covers four years of thirty two weeks each *One year of collegiate* work is required for admission Total fees are $185 *per year, graduation* fee $30 The Dean is Dr Isadore Dyer The total *registration* for 1915 16 was 265 graduates, 75 The eighty second *session begins Sept* 25, *1916*, and ends June 6, 1917

MAINE

Maine, population 767,638, has one medical college, the Bowdoin Medical School, located in Brunswick and Portland, the latter having a *population* of 62,161

Brunswick-Portland

Bowdoin Medical School The Medical Department of Bowdoin College The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building *located on* Chadwick Street—Organized in 1820 as the Medical School of Maine The first class graduated in 1821 Present title assumed in 1915 The faculty numbers 66 *Two years* of collegiate work, including courses in physics, chemistry and biology *are required* for admission The course covers four years of eight months each The total fees are $115 each year The Dean is Dr Addison S Thayer, 10 Deering Street, Portland The total number of students in 1915 16 was 60 graduates, 10 The ninety sixth session begins Oct 12, *1916*, and ends June 21, 1917

MARYLAND

Maryland, with a population of 1,351,941, contains two medical colleges, located in Baltimore, a city with 584,605 *inhabitants* They are as follows Johns Hopkins University Medical Department and the University of Maryland School of Medicine and College of Physicians and Surgeons, the last two *having been* merged

To be eligible to practice medicine in Maryland, all students matriculating in the session of 1914-15 and thereafter, in addition to a four-year high school education, must have completed a year *of* college work including courses in physics, chemistry, biology and French or German, *prior* to beginning the study of medicine Students matriculating in 1918-19 and thereafter must have completed *two years* of *College work*

Baltimore

Johns Hopkins University Medical Department, Washington and *Monument* Streets—*Organized in 1893* *The first* class graduated in 1897 The faculty consists of 17 professors and 139 clinical professors, etc, a total of 156 The requirements for admission demand that the applicant either has (a) completed the chemical biological course which leads to the A B degree in the university or (b) graduated at an approved college or scientific school and has a knowledge of French *and German*, physics, chemistry and biology, such as may be obtained from a year's course The course extends over four years of eight and one half months each The charge for tuition is $240 for the first year and $200 for each of the other three years The Dean is Dr J Whitridge Williams Total registration for 1915 16 was 353, graduates, 82 The twenty fourth *session* begins Oct 3, *1916*, and ends June 12, 1917

University of Maryland School of Medicine and the College of Physicians and Surgeons, Lombard and Green Streets—Organized in 1807 as the College of Medicine of Maryland The first class graduated in 1810 In 1812 it became the University of Maryland School of Medicine Baltimore Medical College was merged into it in 1913 In 1915 the College of Physicians and Surgeons was merged and the present name assumed The combined faculty numbers 188 A year *of* collegiate work is required for admission Beginning with the session of 1918 19 *two years* of college work will be required The course covers four years of eight months each The total fees are $165 each year, matriculation fee $5, graduation fee, $30 The Dean is Dr J M H *Rowland* *Total registration for 1915 16* was 368 *graduates*, 123 The one hundred and tenth session begins Oct 2, *1916*, and ends June 1, 1917

MASSACHUSETTS

Massachusetts, *population*, *3,662,339*, has *four* medical colleges Medical School of Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and *Tufts College Medical School* They are all situated *in Boston*, a city of 745,139

Boston

Medical School of Harvard University, 240 Longwood Avenue—Organized in 1782 The first class graduated in 1788 It has a faculty of 54 professors and 182 associates assistants etc, a total of 236 Candidates for admission must present a recognized college degree with courses in general and organic chemistry or credits for *two years* of work in a recognized college or scientific school, which must include *courses in physics*, general and organic chemistry and biology The session is four years of eight months each The total fee for each is *$225* The *Dean* is Dr Edward H Bradford The total registration for 1915 16 was 334, graduates, 71 The one hundred and thirty fifth *session begins Sept* 25, *1916*, and ends June 21, 1917

Boston University School of Medicine, 80 East Concord Street—Organized in *1873* In *1874* the New England Female Medical College, founded in 1848, was merged into it The first class graduated in 1874 *Two years* of collegiate work are required for admission The faculty includes 30 professors, 40 associates, etc, making a total of 70 The course covers four years of eight months each Total fees for each of the four years, respectively, are $170, $157, $151 and $150 The Dean is Dr John P Sutherland Total registration for 1915 16 was 75, graduates, 18 The forty fourth session begins Oct 5, 1916, and ends June 6, 1917

Tufts College Medical School, 416 Huntington Avenue—Organized in *1893* as the Medical Department of Tufts College The first class graduated in 1894 It has a faculty of 45 professors and 77 assistants lecturers, etc, a total of 122 One year of collegiate work is required for admission The course covers *four years* of eight months each The total fees are $155 each year The Dean is Dr Charles I Painter Total registration for 1915 16 was 380, graduates 70 The twenty third session begins Sept 21, 1916, and ends June 15, 1917

College of Physicians and Surgeons, 517 Shawmut Avenue—Organized in 1880 The first class graduated in 1882 Total attendance of medical students during 1915 16 was about 47 There were 12 graduates *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of thirty three states*

MICHIGAN

Michigan, population 3,015,442, has three medical colleges Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic Medical College of the University of Michigan, are located at Ann Arbor, a city of 14,979 people The Detroit College of Medicine and Surgery is located at Detroit, a city of 554,717 inhabitants

To be eligible for license to practice medicine in Michigan all students *matriculating in* and after the session of 1914-15, in addition to an accredited four-year high school education, must have completed at least one year's work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL — Organized in 1850 as the University of Michigan Department of Medicine and Surgery The first class graduated in 1851 Present title assumed in 1915 It has a faculty composed of 20 professors and 59 associates instructors etc , a total of 79 The entrance requirements are *two years* of college work including courses in chemistry physics and biology, with laboratory work and a reading knowledge of one modern language The curriculum embraces four years of nine months each The total fees for Michigan students for the entire course of four years is $350 and for others about $400 The Dean is Dr Victor C Vaughan The total registration for 1915 16 was 324 graduates 64 The sixty seventh session begins Oct 5, 1915 and ends June 29 1916

UNIVERSITY OF MICHIGAN HOMEOPATHIC MEDICAL SCHOOL — Organized in 1875 The first class graduated in 1877 The work of the first two years is taken in the same classes with the Medical School of the University of Michigan The entrance requirements are *two years* of collegiate work The Dean is Dr W B Hinsdale The total registration for 1915 16 was 44 graduates, 8 The next session begins Oct 5, 1915 and ends June 9 1916

Detroit

DETROIT COLLEGE OF MEDICINE AND SURGERY, 250 St Antoine Street — Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College organized in 1868 and the Michigan College of Medicine organized in 1880 Reorganized with present title in 1913 The first class graduated in 1886 Entrance requirements are one year of collegiate work The faculty embraces 23 professors 148 lecturers etc , a total of 171 The course covers four years of eight months each The fees for the four years *respectively* are $155 $150, $130 and $130 The Secretary is Dr Joseph H Hathaway The total registration for 1915 16 was 180 graduates 49 The thirty second session begins Sept 25, 1916, and ends May 31, 1917

MINNESOTA

Minnesota population 2 226 761, contains one medical school, the University of Minnesota Medical School, situated in Minneapolis, a city of 353,460, inhabitants

Candidates for license to practice medicine in Minnesota who graduated subsequent to June 1, 1912, in addition to an accredited four-year high school education, must have completed *two years* of work the equivalent of that done in the liberal arts department of the University of Minnesota, including courses in physics, chemistry and biology, prior to beginning the study of medicine

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL — Organized in 1883 as the University of Minnesota College of Medicine and Surgery reorganized in 1888 by absorption of St Paul Medical College and Minnesota Hospital College The first class graduated in 1889 In 1908 the Minneapolis College of Physicians and Surgeons organized in 1883 was merged In 1909 the Homeopathic College of Medicine and Surgery was merged Present title in 1913 The faculty includes 46 professors and 61 instructors and assistants a total of 107 The curriculum covers four years of nine months each and a year's internship in an approved hospital The entrance requirements are *two years* of university work which must include one year each of physics general chemistry qualitative analysis zoology or botany and French or German all in addition to a four year high school course including two years of Latin Students entering hereafter will be required to secure a degree of B S or A B before the M D is granted Total fees are $150 each year The Dean is Dr E P Lyon The total registration for 1915 16 was 253 graduates 51 The twenty ninth session begins Sept 27, 1916 and ends June 15 1917

MISSISSIPPI

Mississippi population, 1,926,778, has one medical college, the Department of Medicine of the University of Mississippi, which is located at Oxford, a city of 2 014 inhabitants

Candidates for license to practice medicine in Mississippi who matriculate in the session of 1915-16 and thereafter, in addition to a standard four-year high school education, must have completed a year's work in an approved college or university, including courses in physics, chemistry, biology and a modern language, before entering on the study of medicine

Oxford

UNIVERSITY OF MISSISSIPPI DEPARTMENT OF MEDICINE — Organized in 1903 Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg but was discontinued in 1910 after graduating one class. The session extends over eight and a half months Entrance requirements are one year of collegiate work in addition to an accredited four year high school education The total fees each year are $98 The faculty numbers 21 The Dean is Dr W S Leathers The total registration for 1915 16 was 55 The fourteenth session begins Sept 20 1916 and ends May 29 1917

MISSOURI

Missouri, population 3,391,789, has seven medical colleges St Louis, population 745,988, contains three of these, viz , the School of Medicine of St Louis University, Washington University Medical School and the Medical Department of the National University of Arts and Sciences Kansas City, with a population of 289,879, has three colleges, the Eclectic Medical University the Kansas City College of Medicine and Surgery and the Southwest School of Medicine and Hospital The School of Medicine of the University of Missouri is at Columbia, a town of 12 103 people

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE — Organized at St Louis in 1845 was discontinued in 1855, but was reorganized at Columbia in 1872 Teaching of the clinical years was suspended in 1909 The faculty includes 13 professors and 7 assistant professors, lecturers etc a total of 20 The course covers two years of nine months each The entrance requirements are *two years* of college work including French or German 8 hours general zoology, 8 hours physics 8 hours inorganic chemistry 8 hours and general bacteriology 3 hours Total fees are $45 each year The acting Dean is Dr Guy L Noyes Total registration for students for 1915 16 was 74 The next session begins Sept 18, 1916 and ends June 7 1917

Kansas City

ECLECTIC MEDICAL UNIVERSITY 1423 Independence Avenue — Organized at Kansas City Mo , in 1898 with the present title Moved to Kansas City Kan in 1907 and took the name of Western Eclectic College of Medicine and Surgery Returned to Kansas City Mo in 1909 and resumed the present title First class graduated in 1900 No students or graduates are reported for 1915 16 and it is not known whether the school will reopen *Reported not in good standing by the Missouri State Board of Health and by thirty other state licensing boards*

KANSAS CITY COLLEGE OF MEDICINE AND SURGERY Eclectic Twenty Third and Holmes Streets — An offshoot of the Eclectic Medical University organized in 1915 It apparently took away all the students from the latter which reports no students or graduates for 1915 16 The new school had a total registration for 1915 16 of 86 graduates 12 Since this school is an offshoot of a Class C medical college reported not recognized by the Missouri State Board, no higher rating could be granted to it pending an inspection

SOUTHWEST SCHOOL OF MEDICINE AND HOSPITAL Homeopathic — Organized in 1915 following the demise of the Kansas City Hahnemann Medical College occupies the same building and most of the students enrolled were those in the old school Total enrolment in 1915 was 20 graduates 8 It was not learned whether the college would reopen *It is reported as not in good standing by the Missouri State Board of Health*

St Louis

WASHINGTON UNIVERSITY MEDICAL SCHOOL Kingshighway and Euclid Avenue — Organized in 1842 as the Medical Department of St Louis University In 1855 it was chartered as an independent institution under the name of St. Louis Medical College The first class graduated in 1843 In 1891 it became the Medical Department of Washington University In 1899 it absorbed the Missouri Medical College The faculty comprises 27 professors and 67 lecturers instructors etc a total of 94 *Two full years* of college work are required for admission including courses in English physics chemistry and biology and a reading knowledge of German The course is four years of eight months each The total fees for the four years are respectively $155 $150 $150 and $155 The Dean is Dr Philip A Shaffer The total registration for 1915 16 was 92 graduates 17 The next session begins Sept 28 1916 and ends June 14 1917

ST LOUIS UNIVERSITY SCHOOL OF MEDICINE 1402° South Grand Avenue — Organized in 1901 as the Marion Sims Beaumont Medical College by union of Marion Sims Medical College organized in 1890 and Beaumont Hospital Medical College organized in 1886 First class graduated in 1902 It became the Medical Department of St Louis University in 1903 The faculty is composed of 48 professors 85 lecturers and assistants a total of 133 One year of college subjects preliminary to the four years of medical subjects is given in the medical school After Nov 1, 1917 *two years* of collegiate work will be required for admission The curriculum covers four years of thirty two weeks each The total fees are $150 each year The Dean is Dr Hanau W Loeb The total registration for 1915 16 was 231 graduates 44 The next session begins Oct 2 1916 and ends June 1 1917

NATIONAL UNIVERSITY OF ARTS AND SCIENCES Medical Department Garrison and Lawton Avenues — Organized in 1873 as the American Medical College and Eclectic Institution Eclecticism dropped in 1910 Absorbed the Barnes Medical College in 1911 Became the Medical Department of the National University of Arts and Sciences in 1912 Absorbed St Louis College of Physicians and Surgeons in 1915 Two classes were graduated each year from 1874 to 1883 inclusive Since then one class has graduated each year The Secretary is Dr E L Cooley The total registration for 1915 16 was 149 graduates 34 The next session begins Sept. 20 1916 and ends June 10 1917

NEBRASKA

Nebraska, population 1 258 624 has three medical colleges The University of Nebraska College of Medicine and the John A Creighton Medical College of Omaha population 135 455, and the Lincoln Medical College at Lincoln population 46 028

Lincoln

Lincoln Medical College Eclectic Corner 13th and P Streets, Lincoln — Organized in 1890 as the Lincoln Medical College Became Cotner University Medical College in 1911 Affiliation with Cotner University cancelled and present title resumed in 1915 The first class graduated in 1891 The total registration for 1915 16 was 25, graduates, 9 *Official reports indicate that diplomas from this college are not recognized by the licensing boards of twenty nine states*

Omaha

John A Creighton Medical College, Fourteenth and Davenport Streets It is the Medical Department of Creighton University — Organized in 1892 The first class graduated in 1893 It has a faculty of 20 professors and 33 associates, lecturers and assistants, a total of 53 One year of collegiate work is required for admission The course of study embraces four years of eight months each The total fees each year are $130, matriculation fee $5 Total registration for 1915 16 was 128, graduates, 41 The thirty fifth session begins Sept 22, 1916, and ends June 2, 1917

University of Nebraska College of Medicine, Forty Second Street and Dewey Avenue — Organized in 1881 as the Omaha Medical College The first class graduated in 1882 It became the Medical Department of *Omaha University in 1891* In *1902* it affiliated with the University of Nebraska, with the present title The first two years were given at Lincoln and the last two in Omaha until 1913 when all four years were transferred to Omaha The faculty is composed of 31 professors and 28 lecturers and instructors, total 59 *Two years* of collegiate work are required for admission including courses in physics, chemistry, zoology and German The fees for each of the four years respectively are $135, $130, $120 and $120 The Dean is Dr Irving S Cutter Total registration for 1915 16 was 123, graduates, 21 The next session begins Sept 18, 1916, and ends June 9, 1917

NEW HAMPSHIRE

New Hampshire, population 440,584, has one medical college, located at Hanover, population 2 075

To be eligible for license to practice medicine in New Hampshire, all students matriculating in and after the session of 1915-16, in addition to a four-year high school education, must have completed at least *two years* of work in an approved college of liberal arts, prior to beginning the study of medicine

Dartmouth Medical School — Organized as New Hampshire Medical Institute in 1797 The first class graduated in 1798 It is under the control of the trustees of Dartmouth College Clinical Teaching was discontinued in 1914 The faculty is made up of 10 professors and 2 instructors, a total of 12 *Two years* of collegiate work are required for admission The course covers nine calendar months in each year, or eight months of actual teaching Candidates for the B S degree in Dartmouth College may substitute the work of the first two years in medicine for that of the junior and senior years in the academic department Candidates for the A B degree may make a similar saving of one year The fees for the two years in medicine are, respectively, $174 and $175 50 Dean, Dr John M Gile, Secretary, Colin C Stewart The total registration for 1915 16 was 33 The next session opens Sept 21, 1916, and ends June 20, 1917

NEW YORK

New York State, population 10,086,568, has ten medical colleges Seven of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Cornell University Medical College, the University and Bellevue Hospital Medical College and Fordham University School of Medicine, are located in New York City, population 5,468,190 Albany Medical College is located in Albany, a city of 103,580 people The University of Buffalo Medical Department is situated in Buffalo, population 461,335 The College of Medicine, Syracuse University, is in Syracuse, a city of 152,534 inhabitants

Albany

Albany Medical College Lancaster and Jay Streets — Organized in 1838 The first class graduated in 1839 It became the Medical Department of Union University in 1873 In 1915, Union University assumed full control The faculty is composed of 9 professors and 49 instructors, assistants, etc, a total of 71 One year of collegiate work, including college courses in physics, chemistry, biology and French or German is required for admission The curriculum covers four years of eight months each The fees for each year are $160 The Dean is Dr Thomas Ordway The total registration for 1915 16 was 148, graduates, 48 The eighty sixth session begins Sept 25, 1916, and ends June 8, 1917

Buffalo

University of Buffalo Medical Department, High Street, near Main — Organized in 1846 The first class graduated in 1847 It absorbed the Medical Department of Niagara University in 1898 The faculty is composed of 31 professors and 74 lecturers, assistants, etc a total of 105 One year of collegiate work, including college courses in physics, chemistry and biology are required for admission The course covers four years of eight months each The total fees for the four years, respectively, are $185 $180 $140 and $140 The Dean is Dr Thomas H McKee Total registration for 1915 16 was 181, graduates, 35 The seventy first session begins Sept 25, 1916, and ends June 8, 1917

New York

Columbia University College of Physicians and Surgeons 437 West Fifty Ninth Street — Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811 In 1860 it became, by affiliation, the Medical Department of Columbia College It was made a permanent part of Columbia College by legislative enactment in 1891 That institution became Columbia University in 1896 The faculty is composed of 17 professors and 233 instructors, demonstrators etc, a total of 250 *Two years* of collegiate work including courses in physics, chemistry and biology and either French or German are required for admission The work covers four years of eight months each The Dean is Dr Samuel W Lambert The total fees for the four years respectively are $265, $251, $250 and $275 Total registration for 1915 16 was 419, graduates, 73 The one hundred and ninth session begins Sept 27, 1916, and ends June 6, 1917

Cornell University Medical College, First Avenue and Twenty Eighth Street New York City and Ithaca — Organized in 1898 The first class was graduated in 1899 • The work of the first year may be taken either in Ithaca or New York The faculty is composed of 48 professors and 76 assistants, lecturers, instructors etc, a total of 124 All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work The candidate must also have such knowledge of physics inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work The fees for each of the four years are respectively, $190, $185, $185 and $200 The Dean is Dr William M Polk Total registration for 1915 16 was 151, graduates, 30 The nineteenth session begins Sept. 27, 1916, and ends June 16, 1917

Fordham University School of Medicine, Bathgate Avenue and Fordham Road — Organized in 1905 as the School of Medicine of St. John s College Present title assumed in 1907 First class graduated in 1909 The faculty consists of 51 professors and 59 lecturers and assistants, a total of 110 The course of instruction covers four years of eight and a half months each Total fees for the four years, respectively, are $216, $216, $212 and $210 A year's work in a recognized college of liberal arts, including college courses in physics, chemistry and biology is required for admission The Dean is Dr William P Healy The total registration for 1915 16 was 256, graduates, 42 The twelfth session begins Sept 29, 1916, and ends June 11, 1917

Long Island College Hospital Henry Street near Atlantic Avenue, Brooklyn — Organized in 1858 The first class graduated in 1860 It has a faculty of 16 professors and 111 assistants instructors, etc, a total of 127 A year of collegiate work, including college courses in physics, chemistry and biology is required for admission In and after 1918 19 *two years* of collegiate work will be required for admission The course covers four years of eight months each Fees first year, $210 second year, $205, third, $200, and $200 for the fourth year The secretary is Dr Otto V Huffman Total registration 1915 16 was 272 graduates 84 The fifty ninth session begins Sept 25, 1916, and ends June 1, 1917

New York Homeopathic Medical College and Flower Hospital, Eastern Boulevard, between Sixty Third and Sixty Fourth Streets — Organized in 1858 Incorporated in 1860 as the Homeopathic Medical College of the State of New York The title, New York Homeopathic Medical College was assumed in 1869 Present title assumed in 1908 The first class graduated in 1861 The faculty consists of 26 professors and 55 assistants, lecturers, etc, a total of 81 The total fees for each year of the four years, respectively, are $190, $185 $175 and $205 The Dean is Dr Royal S Copeland Total registration for 1915 16 was 177, graduates, 63 The fifty seventh session begins Sept 26, 1916, and ends June 6, 1917

New York Medical College and Hospital for Women (Homeopathic) 17 19 West One Hundred and First Street — Organized in 1863 The first class graduated in 1864 The faculty numbers 73 One year of collegiate work is required for admission which must include courses in physics, chemistry and biology The course covers four years of thirty weeks each The fees for each of the four years, respectively, are $180, $175, $160 and $180 The Dean is Dr Cornelia C Brant The total registration for 1915 16 was 47, graduates, 11 The fifty fourth session begins Sept 20, 1916, and ends June 1, 1917

University and Bellevue Hospital Medical College, First Avenue and Twenty Sixth Street — Organized in 1898 by the union of the New York University Medical College, organized in 1841 and the Bellevue Hospital Medical College, organized in 1861 It is the Medical Department of New York University First class graduated in 1899 The faculty is composed of 53 professors and 127 instructors, etc in all 180 The course covers four years of eight months each Entrance requirements are one year of collegiate work, in addition to a standard four year high school course, including college courses in physics, chemistry and biology On and after Jan 1, 1918 (session of 1918 19) *two years* of college work will be required for admission, including courses in the *prescribed sciences and a modern language* The fees are $200 per year graduation fee, $25 The Dean is Dr Samuel A Brown Total registration for 1915 16 was 395, graduates, 46 The next session begins Sept 20, 1916, and ends June 6, 1917

Syracuse

Syracuse University College of Medicine, 307 311 Orange Street — Organized in 1872 when the Geneva Medical College, chartered in 1834 was removed to Syracuse, under the title The College of Physicians and Surgeons of Syracuse University" *Present* title assumed in 1875 when a compulsory three year graded course was established The first class graduated in 1873 and a class graduated each subsequent year In 1889 the amalgamation with the university was made complete Course extended to four years in 1896 Two years of a recognized college course are required for admission The course covers four years of thirty five weeks each The total fees are $175 annually The faculty is composed of 21 professors and 59 associate and assistant professors lecturers and instructors The Dean is Dr John L Heffron The total enrolment for 1915 16 was 115, graduates 24 The forty fifth session begins Sept 19, 1916, and ends June 12, 1917

NORTH CAROLINA

North Carolina, population 2,371 095, has three medical schools, each of which gives only the first two years of the medical course The School of Medicine of the University of North Carolina is located at Chapel Hill, population 1,149 The Leonard Medical School is at Raleigh population 19,980 Wake Forest College School of Medicine it at Wake Forest, population 1,443

Chapel Hill

University of North Carolina School of Medicine — Organized in 1890 Until 1902 this school gave only the work of the first two years when the course was extended to four years by the establishment of a department at Raleigh The first class graduated in 1903 A class was graduated each subsequent year including 1910, when the clinical department at Raleigh was discontinued One year of collegiate work is required for admission The faculty is composed of 12 professors and 13 lecturers assistants etc a total of 25 The total fees for the two years respectively are $120 and $125 The Dean is Dr I H Manning The total registration for 1915 16 was 77 The thirty first session begins Sept. 12 1916, and ends June 6 1917

Raleigh

Leonard Medical School — Colored This department of Shaw University was established in 1882 Classes were graduated in 1886 1888 and in all subsequent years including 1914 when clinical teaching was discontinued A year of collegiate work is required for admission It has a faculty of 5 The course covers four years of seven and a half months each The total fees for each year are $30 graduation fee $10 The Dean is Dr George H Stoddard Total registration for 1915 16 was 5 The thirty fifth session begins Sept 27 1916, and ends May 9 1917

Wake Forest

Wake Forest College School of Medicine —This school was organized in 1902 The faculty including the professors of chemistry physics and biology numbers 8 exclusive of laboratory assistants Only the first two years of the medical course are offered after the completion of freshmen and sophomore college work and on this combined course the B S degree is conferred Each annual course extends over nine months The fees for each year aggregate $103 The Secretary is E B Earnshaw The total registration for 1915 16 was 34 The fifteenth session begins Sept. 5 1916, and ends May 25, 1917

NORTH DAKOTA

North Dakota, population 713,083, has one medical college, the School of Medicine of the University of North Dakota, which is situated at University, a suburb of Grand Forks, a city of 15,332 people It gives only the first two years of the medical course.

Candidates for license to practice medicine in North Dakota who graduated in 1912 and thereafter, in addition to a four-year high school education must have completed *two years* of work in an approved college of liberal arts including courses in Latin, physics, chemistry botany and zoology, prior to beginning the study of medicine Beginning in 1918 every applicant for a license must show evidence of having spent at least one year as an intern in a hospital

University

University of North Dakota School of Medicine — Organized in 1905 The faculty is composed of 6 professors and 12 instructors a total of 18 The course consists of *two years* of academic work and two years of medicine occupying nine months each year The total fee for each of the medical years is $50 The Dean is Dr Harley E French The total registration for 1915 16 was 23 The eleventh session begins Sept 26 1916 and ends June 20 1917

OHIO

Ohio population 5 038 627, has five medical colleges Two of these, the Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati a city of 406,706 inhabitants Cleveland, population 656,975, contains one medical school Western Reserve University School of Medicine Columbus, population 209 722, contains the two departments of the Ohio State University, the College of Medicine and the College of Homeopathic Medicine

Cincinnati

University of Cincinnati College of Medicine, Clifton Avenue west of Vine Street — Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College founded in 1852) The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896 Under a similar agreement March 2 1909 the Miami Medical College also merged into the University when the title of Ohio-Miami Medical College of the University of Cincinnati was taken Present title assumed in 1915 The faculty consists of 47 professors 94 associates assistants etc. a total of 141 The course covers four years of eight months each The fees for each of the first three years are $150 and for the fourth year $170 The Dean is Dr Christian R Holmes The total registration for 1915 16 was 88 graduates, 22 The next session begins Oct 3, 1916 and ends June 16 1917

Eclectic Medical College 630 West Sixth Street — Organized in 1833 at Worthington as the Worthington Medical College Removed to Cincinnati in 1843 In 1845 it was chartered as the Eclectic Medical Institute In 1857 the American Medical College, organized in 1839 was merged into it, and in 1859 the Eclectic College of Medicine and Surgery organized in 1856, was merged into it. In 1910 it assumed its present title Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive It has a faculty of 25 professors and 10 lecturers and assistants a total of 35 One year of college work is required for admission The course covers four years of eight months each The fees are $120 for each year The Secretary is Dr John K Scudder Total registration for 1915 16 was 101 graduates 28 The next session begins Sept 14, 1916, and ends May 14, 1917

Cleveland

Western Reserve University School of Medicine, 1353 East Ninth Street — Organized in 1843 as the Cleveland Medical College The first class graduated in 1844 It assumed the present title in 1881 In 1910 it absorbed the Cleveland College of Physicians and Surgeons The faculty includes 38 professors and 58 lecturers assistants etc, a total of 96 The curriculum embraces four years of eight and one half months each Three years of college work are required for admission The total fees for each of the four years are, respectively $162 $155, $150 and $155 The Secretary is Dr F C Waite The total registration for 1915 16 was 178 graduates 49 The seventy fourth session begins Sept 28 1916 and ends June 14, 1917

Columbus

Ohio State University College of Medicine, Buttles Avenue and Park Street — Organized in 1907 as the Starling Ohio Medical College by the union of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890) In 1914 it became an integral part of the Ohio State University with its present title The faculty consists of 42 professors and 56 lecturers demonstrators etc a total of 98 *Two years* of collegiate work are required for admission The course covers four years of eight months each Tuition fees are $150 each year The Dean is Dr E F McCampbell The total registration for 1915 16 was 185 graduates 61 The next session begins Sept 19 1916 and ends June 23 1917

Ohio State University College of Homeopathic Medicine — Organized in 1914 when the property of the Cleveland Pulte Medical College of Cleveland was transferred to the Ohio State University The faculty numbers 17 *Two years* of college work are required for admission Tuition fees are $150 each year The Dean is Dr Claude A Burrett The total registration for 1915 16 was 39 graduates 7 The third session begins Sept 19, 1916 and ends June 23 1917

OKLAHOMA

Oklahoma, population 2,114,307, has one medical college, the School of Medicine of the University of Oklahoma The work of the first and second years is given in the academic laboratories at Norman, a city of 3,724 inhabitants The work of the third and fourth years is given in Oklahoma City, which has a population of 88,158 and which is eighteen miles north of Norman

To be eligible for license to practice medicine in Oklahoma all students matriculating in 1914-15, in addition to a four-year high school education must have completed at least one year of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine For students matriculated in and after 1917-18, two years of preliminary college work will be required

Norman and Oklahoma City

University of Oklahoma School of Medicine — Organized in 1900 Gave only the first two years of the medical course until 1910 when a clinical department was established at Oklahoma City It has a faculty of 46 professors and 8 instructors a total of 54 One year of collegiate work is required for admission and beginning with the session of 1917 18 *two years* will be required The course is four years of nine months each An optional course of six years is offered for the degrees of B S and M D The total fees for the four years are respectively $55 $43 $25 and $25 The Dean is Dr Leroy Long 325 East Fourth Street Oklahoma City The total registration for 1915 16 was 75 graduates 20 The seventeenth session begins Sept 19 1916 and ends June 5 1917

OREGON

Oregon population 809,490, has one medical college the University of Oregon Department of Medicine located in Portland, a city of 272,833 population

Portland

University of Oregon Department of Medicine Lovejoy and Twenty Third Streets — Organized in 1887 The first class graduated in 1888 A class graduated each subsequent year except 1898 Became an integral part of the University of Oregon in 1910 The Willamette University Medical Department was merged in 1913 It has a facul of 28 professors and 35 lecturers, assistants, etc, a total of 63 Entrance requirements are one year of college work or its equivalent The course is four years of eight months each Fees Matriculation, $5, tuition, $150 each year The Dean is Dr K A J Mackenzie The total registration for 1915 16 was 81, graduates, 16 The thirtieth session begins Oct 1, 1916, and ends June 1, 1917

PENNSYLVANIA

Pennsylvania, population 8,383,992, has six medical colleges Of these, Philadelphia, having a population of 1,683,664, contains five, as follows University of Pennsylvania School of Medicine, Jefferson Medical College, Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania and Temple University Department of Medicine The other school, the School of Medicine of the University of Pittsburgh, is situated in Pittsburgh, a city of 571,984

To be eligible for license to practice medicine in Pennsylvania, students matriculating in the session 1914-15 and thereafter, in addition to a four-year high school education must have completed a year's work either in an approved college of liberal arts or in a preliminary year in the medical college, including college courses in physics, chemistry and biology, before beginning the study of medicine He must also have completed an internship of at least one year in an approved hospital

Philadelphia

University of Pennsylvania School of Medicine, Thirty sixth Street and Hamilton Walk — Organized in 1765 Classes were graduated in 1768 and in all subsequent years except 1772 79, inclusive The original title was the Department of Medicine, College of Philadelphia The present title, School of Medicine of the University of Pennsylvania was adopted in 1909 It granted the first medical diploma issued in America In 1916 it took over the Medico Chirurgical College of Philadelphia to develop it as a graduate school The faculty is made up of 49 professors, associate, adjunct and assistant professors, and 130 lecturers, associates, instructors, etc, a total of 179 The minimum requirements for admission are a standard four year high school course or its equivalent, plus *two years* of work in an approved College of Arts and Science, including courses in French or German, and in physics, chemistry and general biology or zoology, with appropriate laboratory exercises The course embraces four years of study of thirty four weeks each The total fees for each of the four years are, respectively, $233, $210, $210 and $214 The Dean is Dr William Pepper Total registration for 1915 16 was 317, graduates, 74 The one hundred and fifty first session begins Sept 29, 1916, and ends June 20, 1917

Jefferson Medical College, Tenth and Walnut Streets — Organized in 1825 with its present title as the Medical Department of Jefferson College, Canonsburg, Pa Classes have been graduated annually since 1826 In 1838 a separate university charter was granted without change of title since which time it has continued under the direction of its own board of trustees It has a faculty of 42 professors, associate and assistant professors, and 106 associates, lecturers, demonstrators and instructors, a total of 148 Entrance requirements are a completed standard four year high school or college preparatory course, or the equivalent, and in addition *two years* of work in an approved college of arts and science, including courses in a modern language other than English, with specified courses in physics, chemistry and biology with laboratory work amounting to 8 semester hours each The course of study covers graded work of four years of eight and a half months each The tuition is $200 a year with a matriculation fee of $5 paid on admission The Dean is Dr Ross V Patterson The total registration for 1915 1916 was 538, graduates, 162 The ninety second session begins September 25, 1916 and ends June 2, 1917

Woman's Medical College of Pennsylvania, Twenty First and N College Avenue — Organized in 1850 Classes were graduated in 1852 and in all subsequent years except 1862 It has a faculty of 11 professors and 48 assistants, lecturers, etc, in all 59 Entrance requirements are a completed course in a standard secondary school, and in addition *two years* of collegiate work, including courses in physics, chemistry, biology and two foreign languages, one of which must be French or German The curriculum covers four years of eight months each Fees for each of the four years are, resoectively, $192, $176, $183 and $179 50 The Dean is Dr Clara Marshall The total registration for 1915 16 was 55, graduates, 17 The seventy seventh session begins Sept 20, 1916, and ends June 6, 1917

Hahnemann Medical College and Hospital of Philadelphia, 226 North Broad Street — Organized in 1848 as the Homeopathic Medical College of Pennsylvania In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title Assumed present title in 1885 The first class graduated in 1849 Entrance requirements are a completed course in a *standard* secondary school and in addition a preliminary year devoted to college courses in physics, chemistry and biology It has a faculty of 48 professors and 41 lecturers, instructors, etc, in all 89 The work covers four years of eight and a half months each Total fees for the four years, respectively, are $185, $185, $175 and $175 The Dean is Dr William A Pearson The total registration for the college year 1915 16 was 98, graduates, 20 The sixty ninth session begins Oct 1, 1916, and ends May 31, 1917

The Temple University Department of Medicine, Eighteenth and Buttonwood Streets — Organized in 1901 The first class graduated in 1904 The faculty numbers 98 The fees for each of the four years, respectively, are $168 50, $167, $151 and $161 The Dean is Dr Frank C Hammond The total registration for 1915 16 was 46, graduates, 13 [illegible] 18 1916, and ends June 9, 1917

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Pittsburgh

University of Pittsburgh School of Medicine, Grant Boulevard — Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910 The first class graduated in 1887 The faculty is composed of 19 professors and 89 associates, assistants, etc, 108 in all Entrance requirements are *two years* of recognized college work, to have included essentially courses in chemistry (inorganic and organic), physics, biology and German or French, based on a four year high school preparation It is possible for students to get the degree of B S and M D *in six years* The course of study for medicine alone is four years of eight and a half months each The tuition is $250 a year The Dean is Dr Thomas S Arbuthnot The total registration for 1915 16 was 111, graduates, 22 The thirty first session begins Sept 25, 1916, and ends June 13, 1917

SOUTH CAROLINA

South Carolina, population 1,607,745, has one medical college, situated in Charleston, a city of 60,427 people

Charleston

The Medical College of the State of South Carolina, Lucas and Calhoun Streets — Organized in 1823 as the Medical College of South Carolina The first class graduated in 1825 In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838 Classes were graduated in all years except 1862 to 1865, inclusive In 1913, by legislative enactment, it became a state institution It has a faculty of 32 professors and 28 lecturers, instructors, etc, a total of 60 The course covers four years of eight months each *Two years* of collegiate work including courses in physics, chemistry and biology are required for admission in addition to a standard high school preparation The total fees are $140 each year The Dean is Dr Robert Wilson, Jr Total enrolment for 1915 16 was 61, graduates, 16 The eighty eighth session begins Oct 2, 1916, and ends June 7, 1917

SOUTH DAKOTA

South Dakota, population 680,046, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a town of 2,187 people

To be eligible for license to practice medicine in South Dakota, graduates of 1915 and thereafter must show that they matriculated in and graduated from medical colleges which required at least *two years* of collegiate work for admission, including courses in physics, chemistry, biology and a modern language This affects all students who matriculated in the session of 1911-12 and thereafter

Vermilion

University of South Dakota College of Medicine — Organized in 1907 Offers only the first two years of the medical course *Two years* work in a college of liberal arts is required for admission The fees are $60 each year The faculty numbers 10 The Dean is Christian P Lommen, B S The total registration for 1915 16 was 12 The tenth session begins Sept 19, 1916, and ends June 14, 1917

TENNESSEE

Tennessee, population 2,271,379, has four medical colleges Of these Vanderbilt University Medical Department and Meharry Medical College are situated in Nashville, a city with a population of 115,978 The College of Medicine of the University of Tennessee and the University of West Tennessee College of Medicine and Surgery are located in Memphis, population 146,113

To be eligible for a license to practice medicine in Tennessee students matriculating in the session of 1914-15 and thereafter must have completed one year of collegiate work including courses in physics, chemistry, biology and a modern language in addition to a four year high school course before entering on the study of medicine

Memphis

University of Tennessee College of Medicine, three buildings, 879 Madison Avenue, 880 Monroe Avenue and 718 Union Avenue — Organized in 1876 at Nashville as Nashville Medical College First class graduated 1877, and a class graduated each subsequent year Became Medical Department University of Tennessee 1879 In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee This union was dissolved in 1911 The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor in medical teaching, transferring all of its college and hospital equipment to the successor This college then removed to Memphis, where it united with the College of Physicians and Surgeons The Memphis Hospital Medical College was merged in 1913 Lincoln Memorial University Medical Department was merged in 1914 Entrance requirements are a completed secondary education plus one year of collegiate work The fees are $100 per year for bona fide residents of the state and $150 per year for non residents, for the fourth year, $175 The Dean is Dr Herbert Thomas Brooks Total registration for 1915 16 was 180, graduates 74 These figures include 21 students from the Lincoln Memorial University 14 of whom were granted diplomas by the latter this year The next session begins Sept 23, 1916, and ends June 6, 1917

University of West Tennessee College of Medicine and Surgery, Colored 1190 South Phillips Place — Organized in 1900 The first class graduated in 1904 and a class graduated each subsequent year It has a faculty of 22 The course covers four years One year of college work is required for admission The fees are $55 per year graduation, $10 extra The Dean is Dr M V Lynk Registration for 1915 16 was 27, graduates, 9 The seventeenth session begins Sept 14, 1916 and ends May 3 1917 *Official reports indicate that the diplomas of this college are not recognized as an acceptable qualification for the license by the licensing boards of thirty four states*

Nashville

Vanderbilt University Medical Department —This school was founded in 1874 The first class graduated in 1875 The faculty consists of 25 professors and 59 lecturers a total of 84 One year of collegiate work is required for admission The course covers four years of nearly eight and a half months each The total fees for each of the first three years are $150, and for the fourth year $175 The Dean is Dr L E Burch The total registration for 1915 16 was 212 graduates 90 The forty third session begins Oct. 2 1916 and ends June 13 1917

Meharry Medical College. Colored First Avenue South and Chestnut Street —This school was organized in 1876 as the Medical Department of Central Tennessee College which became Walden University in 1900 First class graduated in 1877 Obtained new charter independent of Walden University in 1916 The faculty is made up of 13 professors and 12 instructors demonstrators etc 25 in all The work embraces four years of thirty weeks each The total fees for each of the first three years are $70 and for the fourth year, $80 The Dean is Dr G W Hubbard Total registration for 1915 16 was 301 graduates 93 The forty first session begins Sept 19, 1916, and ends May 3, 1917

TEXAS

Texas, population 4,343 710, has three medical colleges The University of Texas Department of Medicine is located at Galveston a city of 41,076 inhabitants The Fort Worth School of Medicine is at Fort Worth, population 99,528 The Baylor University College of Medicine is located in Dallas, population 118 482

To be eligible for a license to practice medicine in Texas, students matriculating in the session of 1914-15 and thereafter must have completed a year of collegiate work including courses of physics chemistry, biology and a modern language, in addition to a standard four-year high school course before entering on the study of medicine

Dallas

Baylor University College of Medicine 720 College Avenue — Organized in 1900 as the University of Dallas Medical Department In 1903 it took its present name and became the Medical Department of Baylor University at Waco It acquired the charter of Dallas Medical College in 1904 The first class graduated in 1901 The faculty numbers 54 Entrance requirement is one year of college work in addition to a four year high school education The course is four years of eight months each The fees are $115 each year matriculation fee of $5 paid but once graduation fee $25 The Dean is Dr E H Cary Total registration for 1915 16 was 59 graduates 25 The seventeenth session begins Oct. 2 1916 and ends May 31 1917

Fort Worth

Fort Worth School of Medicine Medical Department of Texas Christian University Calhoun and Fifth Streets —Organized in 1894 as the Fort Worth School of Medicine It was the Medical Department of the Fort Worth University until 1911 when it became affiliated with Texas Christian University The first class graduated in 1895 The Dean is Dr Samuel A Woodward The total registration for 1915 16 was 50 graduates 7 The twenty third session begins Sept 18, 1916 and ends June 7 1917

Galveston

University of Texas Department of Medicine on the Strand between Ninth and Tenth Streets —Organized in 1891 The first class graduated in 1892 It has a faculty of 16 professors and 16 lecturers a total of 32 The curriculum embraces four years of eight months each The entrance requirement is one year of collegiate work in addition to a four year high school education This requirement will be increased to *two years* of college work in and after the session of 1917 18 The total fees for the four years respectively are $60 $30 $15 and $10 The Dean is Dr William S Carter Total registration for 1915 16 was 215 graduates 35 The twenty sixth session begins Oct 1 1916, and ends May 31 1917

UTAH

Utah, population 424,300, has one medical college, the School of Medicine of the University of Utah, situated at Salt Lake City which has 113,567 people.

To be eligible to secure licenses to practice medicine in Utah students matriculating in and after the session of 1912-13, in addition to a four-year high school education must have completed at least one year of collegiate work prior to beginning the study of medicine, this preliminary college work to have included college courses in physics, chemistry and biology

Salt Lake City

University of Utah School of Medicine —Organized in 1906 Gives only first two years of medical course Each course covers thirty six weeks *Two years* of collegiate work are required for admission The medical faculty consists of 10 professors and 12 lecturers and assistants a total of 22 The fees are $70 each year for residents and $95 each year for non residents The Dean is Dr Perry G Snow Total registration for 1915 16 was 23 The tenth session begins Sept 18 1916, and ends June 7, 1917

VERMONT

Vermont, population 362,452, has one medical school, located at Burlington, a town of 21,432 people

Students matriculating in and after the session of 1912-13 who desire to practice medicine in Vermont must have obtained a preliminary training of at least one year of collegiate work in addition to a standard four-year high school education this additional year's work to include college courses in physics, chemistry and biology

Burlington

University of Vermont College of Medicine Pearl Street College Park —Organized with complete course in 1822 Classes graduated in 1823 to 1836 inclusive when the school was suspended It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years The faculty numbers 45 One year of college work in addition to a four year high school education is required for admission The course of study covers four years of nine months each The total fees for each of the first three years are $145 and $170 for the fourth year The Dean is Dr H C Tinkham The total registration for 1915 16 was 76 graduates, 13 The next session begins Sept 27, 1916 and ends June 27 1917

VIRGINIA

Virginia population 2,171 014 has two medical colleges, one the Department of Medicine of the University of Virginia situated in Charlottesville population 6765, and the Medical College of Virginia at Richmond, population 154 674

*Only graduates of medical colleges registered by the Virginia State Board of Medical Examiners are eligible to obtain licenses to practice medicine in this state Medical colleges to be so registered must require of all students admitted in the session of 1914-15 completion of at least one year and in the session of 1917-18 and thereafter *two years* of collegiate work including courses in physics, chemistry biology and a modern language, preferably German, in addition to a four-year high school education

Charlottesville

University of Virginia Department of Medicine —Organized in 1827 Classes were graduated in 1828 and in all subsequent years except 1865 It has a faculty of 15 professors and 20 lecturers instructors assistants etc a total of 35 The requirements for admission are the completion of a four year high school course or its equivalent and a year of college work devoted to chemistry, physics and biology In 1917 and thereafter *two years* of preliminary college preparation will be required for admission including the specified sciences and French or German Total fees each year are $140 matriculation fee $10 The Dean is Dr Theodore Hough The total registration for 1915 16 was 114 graduates 21 The eighty eighth session begins Sept. 4 1916 and ends June 13 1917

Richmond

Medical College of Virginia Marshall and College Streets — Organized in 1838 as the Medical Department of Hampden Sydney College Present title was taken in 1854 In 1913 the University College of Medicine was merged In 1914 the North Carolina Medical College was merged Classes were graduated in 1840 and in all subsequent years It has a faculty of 45 professors and 88 lecturers instructors etc a total of 133 The requirement for admission is a four year high school education and in addition *two years* of collegiate work including courses in physics chemistry biology and French or German The course embraces four years of eight months each Fees $164 for the first year and $144 for each subsequent year graduation fee $30 The Dean is Dr Stuart McGuire The total *registration for 1915 16* was 296 graduates 91 including 30 students of the North Carolina Medical College and 8 who were granted degrees by the latter The eighty eighth session begins Sept 20 1916 and ends June 5 1917

WEST VIRGINIA

West Virginia population 1 359 474 has one medical college the School of Medicine of West Virginia University which offers the first two years of the medical course It is located at Morgantown a city of 12 974 population

Morgantown

West Virginia University School of Medicine—Organized in 1902, and gives only the first two years of the medical course *One year of* work in an approved college of liberal arts is required for admission In 1917 and thereafter *two years* of college work will be required for admission and the Bachelor's degree will be granted to those who finish the two years in medicine Session extends through *nine months* The faculty numbers 11 Fees For residents of the state, $25 each year, for nonresidents, $50 The Dean is Dr John N Simpson The total registration for 1915 16 was 17 The next session begins Sept 18, 1916, and ends June 13, 1917

WISCONSIN

Wisconsin, population 2,473,533, has two medical colleges, Medical School of the University of Wisconsin, which es the first two years of the medical course, and is ed at Madison, a city of 30,084 people, and the Marquette University School of Medicine, located at Milwaukee, a city of 428,062 people

To be eligible for licenses to practice medicine in Wisconsin, students matriculating in and after the session of 1915-16, prior to entering a medical school must have completed, besides a four-year high school course, *two years* of collegiate work including courses in physics, chemistry, biology and a modern language

Madison

University of Wisconsin Medical School—Organized in 1907 Gives only the first two years of the medical course For matriculation at least *two years* in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology It has a faculty of 14 professors and 8 lecturers, instructors, etc, a total of 22 Tuition fees For residents of the state, $70 each year, for nonresidents, $190 The Dean is Dr Charles R Bardeen The registration for 1915 16 was 101 The ninth session begins Sept 18, 1916, and ends June 20, 1917

Milwaukee

Marquette University School of Medicine, Fourth Street and Reservoir Avenue—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons It has a faculty of 16 professors and 89 assistants, instructors etc, a total of 105 The entrance requirements include, in addition to a four year high school education, *two years* of college work, including courses in physics, chemistry, biology and a modern language The curriculum is for four years of thirty four weeks each The total fees for the four years, respectively are $175, $170, $170 and $195 The dean is Dr Louis F Jermain The registration for 1915 16 was 87, graduates, 46 The fifth session begins Sept 18, 1916, and ends June 14, 1917

PHILIPPINE ISLANDS

The Philippine Archipeligo, having a population (estimated 1912) of 8 460 052, has two medical colleges, the University of the Philippines College of Medicine and Surgery and the Medical Faculty of the University of St Thomas They are located in the city of Manila, which in 1910 had a population of 234,409

Manila

University of the Philippines College of Medicine and Surgery, Manila—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands Present title in 1910 The faculty includes 30 professors and 45 lecturers, assistants, etc, a total of 75 *Two years* of collegiate work leading to the degree of Bachelor of Arts are required for admission The course extends over five years of nine months each with an additional sixth year of intern service The Dean is Dr William E Musgrave The total registration for 1915 16 was 159, graduates, 5 The tenth session began July 1, 1916, and ends April 4, 1917

CANADA

The Dominion of Canada has nine medical colleges, all but one of which require a five-year course, including in the first year courses in physics, chemistry and biology This course is practically equal to that in the colleges of the United States which require one year of college work for admission, including the science courses named None of the Canadian colleges has a minimum requirement of two years of collegiate work, or its equivalent, preliminary to or as a part of the medical course A new medical school at Edmonton, Alberta gives only the first two years of the medical course, or three years including the preliminary science year

Alberta

University of Alberta, Faculty of Medicine, *Edmonton*—Organized in 1913 Offers only the first three years of the five year medical course, including the preliminary science year The faculty numbers 15 Fees for the first year are $60, for the second and third years, each $85 The registrar is Cecil E Race, B A The registration for 1915 16 was 42 The fourth session begins Sept 30, 1916, and ends May 16, 1917

Manitoba

Manitoba Medical College, Winnipeg—It is the Medical Faculty of the University of Manitoba Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year The faculty numbers 58 The fees are $155 for the first year and $150 for each subsequent year The entire course covers five years, the first year including premedical courses in physics, chemistry and biology The Dean is Dr H H Chown, 263 Broadway, Winnipeg Total registration for 1915 16 was 134, graduates, 19 The next session begins Sept 20, 1916, and ends May 11, 1917

Nova Scotia

Dalhousie University, Faculty of Medicine, Halifax, N S—Organized in 1867 Incorporated as the Halifax Medical College in 1875 Reorganized as an examining faculty, separate from the Halifax Medical College in 1855 In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the University and the Board and candidates may qualify at the same time for their academic degrees and the provincial license First class graduated in 1872 It has a faculty of 38 professors, lecturers and demonstrators Requires matriculation examination and a graded course of five years, including premedical courses in physics, chemistry and biology The fees are $110 each year Total registration for 1915 16 was 68, graduates, 12 The Secretary is Prof D Fraser Harris The next session begins Sept 13, 1916, and ends May 10 1917

Ontario

University of Toronto Faculty of Medicine, Toronto—Organized in 1843 as the Medical Faculty of King's College Abolished in 1853 Reestablished in 1887 In 1902 it absorbed Victoria University, Medical Department, and in 1903 absorbed Trinity Medical College The course of study covers five years of eight months each, the first year including premedical courses in physics, chemistry and biology It has a faculty of 51 professors and 134 lecturers, associates, etc, a total of 185 The fees are $150 each year, graduation fee $20 The Secretary is Dr A Primrose The total registration for 1915 16 was 527, graduates, 93 The next session begins Sept 26, 1916 and ends May 26, 1917

Queen's University Faculty of Medicine, Kingston—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year The faculty was originally a department of the University, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston In 1892 the school again became an integral part of Queen's University The faculty includes 25 professors and 14 assistants instructors, etc, a total of 39 The fees amount to $105 each year fee for M D, C M degrees, $30 The course covers five years of seven months each, the first year including premedical courses in physics chemistry and biology The total registration in 1915 16 was 204 graduates, 41 (including 30 who obtained the M B degree, and 11 the M D degree) The Dean is Dr J C Connell The next session begins Sept 13, 1916, and ends April 25, 1917

Western University, Faculty of Medicine, London—Organized in 1881 first class graduated in 1883, and a class graduated each year subsequently The Faculty of Medicine became an integral part of Western University in 1913 The faculty numbers 59 The course is five years of eight months each, the first year including premedical courses in physics, chemistry and biology The total fees each year are $115, matriculation fee $5, graduation fee $25 The Dean is Dr H A McCallum Total registration for 1915 16 was 68, graduates, 16 The next session begins Oct 2, 1916, and ends May 18, 1917

Montreal

McGill University, Faculty of Medicine—Founded 1824 as Montreal Medical Institution, became the Medical Faculty of McGill University in 1829, first class graduated under the university auspices in 1833 No session between 1836 39 owing to political troubles In 1905 it absorbed the Faculty of Medicine of the University of Bishop College The course extends over five years of eight months each, including the preliminary year devoted largely to physics, chemistry and biology The faculty numbers 130 The total fees for the five years respectively are $174, $174, 181, $174 and $204 The total registration for 1915 16 was 317, graduates, 28 The Registrar is Dr John W Scane The next session begins Oct 1, 1916, and ends June 6, 1917

Montreal School of Medicine and Surgery, Montreal—Organized in 1843, incorporated in 1845 In 1891, by act of parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed Present name assumed in 1911 A class was graduated in 1843 and in each subsequent year The faculty numbers 75 The course extends over five years including premedical courses in physics, chemistry and biology The total fees for the five years, respectively are $110, $118 $126, $126 and $138 The Dean is Dr E P Lachapelle The total registration for 1915 16 was 173, graduates, 17 The next session begins Oct 1, 1916, and ends June 30, 1917.

Quebec

Laval University Faculty of Medicine, Quebec—The Quebec School of Medicine, organized in 1848, became in 1852 Medical Department of Laval University, first class graduated in 1855 and a class graduated each subsequent year The faculty numbers 24 The fees are $60 each year The course extends over five years, the first year including courses in physics, chemistry and biology The Dean is Dr Edwin Turcot, Quebec Total registration for 1915 16 was 81, graduates, 10 The next session begins Sept 14, 1916, and ends June 1, 1917

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SATURDAY, AUGUST 19, 1916

MEDICAL EDUCATION—A SIXTEEN YEARS' SUCCESSFUL CAMPAIGN

The Journal publishes this week, for the sixteenth consecutive year, complete statistics regarding medical education in the United States During these sixteen years there has been a most remarkable and encouraging improvement, and it seems worth while to review the measures which have brought about the excellent results

BEGINNING OF THE CAMPAIGN

In 1900, The Journal began collecting statistics regarding medical colleges, students and graduates, and in 1901 the first Educational Number of The Journal was published There were 159 medical colleges included in the statistics At that time it was a matter of common knowledge that many of the colleges then existing were joint-stock corporations, conducted largely for the profit of their owners, that by many of the colleges little or no attention was paid to admission requirements, and that conditions in medical education were far from satisfactory The medical schools with endowments, with well equipped laboratories, or with six or more salaried teachers could be counted on one hand Sectarian medicine had reached its zenith in 1901, there being twenty-two homeopathic and ten eclectic colleges In all colleges included in the statistics, there was an enrolment of 26,417 students, and of these, 5,444 graduated

By the collection and publication of such data, in 1901, a beginning was made in the great campaign for the improvement of medical education The information published provided a fixed point from which future progress could be measured The statistics were collected and published annually for five years, however, when it became evident that, if improvements were to be made, there would need to be a permanent committee, with a permanent secretary and with adequate funds at its disposal to centralize its efforts in this particular field and persistently work for improvement, using such influence and authority as could be exerted by a voluntary organization such as is the American Medical Association, and using also the greater power of publicity, particularly that which was available through the columns of The Journal The statistics collected and published by The Journal, therefore, showed the necessity, and led to the creation of a permanent committee of the American Medical Association—the Council on Medical Education—which, as one of its lines of work, would continue the collection and publication of these statistics Although created in 1904, the Council did not complete its organization and employ a permanent secretary and secure fixed headquarters until in December, 1905 It had already prepared two standards of medical education, however, one referred to as "the standard now recommended"[1] and the other as "the ideal standard,"[2] and pamphlets had been issued setting forth these standards The Council had also held its first annual conference on Medical Education which, repeated in successive years, became a powerful factor in its subsequent campaign Another strong factor in the success of the Council's campaign was that from the beginning it had the hearty and gratifying support from the officers of a large majority of the medical colleges

PROGRESS FROM 1906 TO 1910

By Jan 1, 1906, permanent headquarters had been established, and the campaign by correspondence with medical colleges and licensing boards urging the adoption of the standards, had been begun Then also was begun a careful study of medical education, and permanent files for the information were started In 1907 the first complete list of foreign medical colleges was prepared,[3] which revealed the fact that this country alone had more medical schools than all the rest of the world Facts regarding the histories of all medical colleges in the United States, existing and extinct, were collected To secure more reliable information regarding the work of the various medical colleges, in 1907 and 1909, respectively, two complete tours of inspection were made, and the first two classifications prepared, the second of which was published in 1910 A special campaign was carried on in cities in which two or more weak medical colleges existed, urging that such institutions merge and in that way form one stronger institution

By 1910, the number of medical students had been reduced from 28,142 to 21,526, the number of graduates from 5,600 to 4,440, and the number of medical colleges from 162 to 131 Meanwhile, many of the institutions had undergone a remarkable internal development better teachers had been employed, better buildings erected, new laboratories established, and better clinical facilities secured Furthermore, a remarkable improvement had been made in entrance standards The number of medical colleges requiring for admission, in addition to a high school education, one year of collegiate work, had been increased from five to thirty-five, and eight state licensing boards had adopted a similar standard of preliminary education for those who were to secure licenses to practice medicine in those states Through the inspections and other means of verifying the data collected, the information published each year in the Educational Number was verified and made more reliable A chart[4] was published showing the educational standards of the European countries in comparison with those of the United States

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[1] This briefly urged (*a*) a four year high school education (*b*) four years of thirty weeks each of thirty hours per week in a medical school and (*c*) the passing of an examination before a state licensing board It was urged that it be generally adopted by all medical schools by Jan 1 1908

[2] This standard urged (*a*) a four year high school course (*b*) a year s work in physics chemistry and biology (*c*) four years in a medical school and (*d*) a year s internship in a hospital This was urged for adoption by Jan 1 1910

[3] The Journal A. M A Aug 17 1907, p 596

PROGRESS FROM 1910 TO 1915

During the second five-year period of the Council's work, between 1910 and 1915, the general study of medical education was continued The information regarding medical colleges, existing and extinct, was perfected sufficiently to enable the publication of a life chart[5] by means of which, for the first time, an accurate knowledge could be had as to the number of medical colleges existing in the United States in any year since the Department of Medicine of the College of Philadelphia—now the University of Pennsylvania—was organized in 1765 To secure a better record of the history and educational qualifications of medical students, and facts regarding their promotion from class to class, a medical students' register was established Here, again, the Council received the earnest support and a gratifying cooperation from the majority of medical colleges Two other complete inspections of medical colleges were made, and two new classifications published

During this second five-year period, twenty medical colleges were merged with others, and nineteen became extinct, thus further reducing the total number, from 131 to ninety-five The number of students also was reduced, from 21,526 to 14,891, and the total number of graduates from 4,440 to 3,536 Meanwhile, the number of medical colleges which had adopted the one or two years of collegiate work for admission was increased from thirty-five (27 per cent) to eighty-three (88 per cent), and the number of state licensing boards holding to these higher requirements was increased from eight to twenty-eight Not only had 88 per cent of all medical colleges adopted the higher entrance requirements, but also, through the reliable information, collected by the Council, the methods employed by each college in admitting students, and the strictness with which the standards were enforced, were known with fair accuracy The continuous agitation for better conditions in medical education had appealed to philanthropists to such an extent that endowments for medical education had been greatly increased, and large gifts for medical buildings, new laboratories, scholarships, endowed chairs and teaching hospitals had become of frequent occurrence The fall of 1914 witnessed the general adoption of higher entrance qualifications, namely, one or more years of college work, including courses in physics, chemistry and biology The standard which, in 1905, had been termed "ideal" became the required minimum in 1914 At the beginning of that session, forty-three medical colleges, for the first time, began the enforcement of the higher requirements

During 1915-1916, the further extension of this requirement of preliminary education from one to two years of collegiate work, in addition to the high school education, was urged and, in June, 1916, the Council was instructed by the House of Delegates not to retain in Class A, after Jan 1, 1918, any medical college which was not requiring for admission that standard of preliminary education This action was by no means drastic, since the two years of college requirement has already been put into effect by forty-six medical colleges, it has also been adopted by seventeen licensing boards as the minimum standard of preliminary education of those who are to receive the license to practice medicine in those states

THIS STANDARD TO BE PERMANENT

Coupled with its instructions to the Council regarding the requirement of two years of premedical college work, the House of Delegates adopted the statement of its reference committee on medical education that this represented the highest preliminary qualification that should be legally exacted in this country It is evident, therefore, that the struggle by the medical colleges to reach higher entrance standards will have its fixed limit, and that their attention may hereafter be directed toward other needs, such as larger endowments, more salaried teachers and more abundant and better used clinical material

THE EDUCATIONAL NUMBER FOR 1916

The readers of this Educational Number will doubtless share in the gratification that such marvelous improvements have been made in a brief sixteen years In fact, the progress has far exceeded the highest expectations of those who were acquainted with the serious conditions existing at the time the campaign for improvement began Many institutions which were conducted for the profit of their owners have been closed, the number of high grade, well equipped and well endowed medical colleges, however, has been greatly increased, and a permanent American standard of preliminary education has been established A fixed basis has been reached on which medical education in this country can be built In fact, it already has reached a stage which is quite satisfactory and can be referred to with something like pride This country already has a score or more of medical schools which in every particular are equal, if not superior, to those to be found in any other country Under a continuance of the campaign for improvement, others will be added to this group, and the number of colleges conducted by those who are in the game for personal gain and who disregard reasonable educational standards are becoming fewer each year There is a most hopeful outlook for the future

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[4] The Journal A M A Aug 20, 1910, p 680

[5] The Journal A M A Aug 23, 1913, p 578

THE ACQUIRED TOLERANCE FOR ARSENIC

The tolerance for arsenic in the form of arsenous oxid or the familiar "white arsenic," which is known to exist among arsenic-eating persons in various parts of the world, can be induced experimentally in animals by commencing with very minute doses The phenomenon, therefore, is no longer regarded as anything peculiar to the human species or particularly unique in its manifestations The degree of tolerance attainable is shown by the fact that Knapp administered 0 4 gm (7 grains) of arsenous oxid to a habitual arsenic eater without inducing any obvious effect The explanations of the establishment of a marked resistance against a substance of such high toxicity have been varied and often unconvincing Of late there has been a tendency in some quarters to put this development of tolerance into the category of the immunity reactions which have acquired prominence in the field of bacteriologic study The supposed evidence that the serum of animals "immunized" against arsenic contains both immunizing and antitoxic properties against this poison has been found to be invalid [1] There is no real parallelism or analogy between the manifestations of tolerance to arsenic and immunity to bacterial invasion

At the outset it must be understood that tolerance for arsenic has been obtained only through administration of arsenous oxid in substance by way of the mouth The subcutaneous administration of soluble salts of arsenic apparently is not a satisfactory way of developing resistance to the poison [2] Arsenic administered orally in the form of arsenous oxid reappears largely in the feces, only a small portion being excreted through the kidneys In 1906 Cloetta[3] of Zurich offered an explanation of the nature of the developed tolerance for arsenic that has aroused considerable interest He attributed it to a diminished absorption of arsenic from the alimentary tract in cases of immunity The intestinal mucosa was assumed to become less permeable gradually so that less arsenic would actually find its way into the circulation, and thus the body would become protected against ordinary lethal doses given by way of the mouth In this sense, it will be noted, tolerance for arsenic would be equivalent to a localized resistance in the bowel whereby the mucosa would allow less poison to traverse it The evidence that the tolerance is not of a systemic character is seen in the fact that animals rendered resistant to enormous doses of arsenous oxid promptly succumb when a few milligrams of a soluble salt are introduced subcutaneously and thus actually enter the circulation

A more recent examination of this subject at the Pharmacologic Institute of the University of Berlin has afforded a somewhat different interpretation of the phenomena Joachimoglu[4] denies that the absorption of arsenic is decreased with increasing doses It must be remembered, however, that at best only small quantities of arsenic are absorbed when the administration is in the form of arsenous oxid given in substance by way of the mouth The first effect of arsenic in the gastro-intestinal canal is well known to be a high degree of congestion of the lining membrane, often followed by extensive destruction or deterioration of the epithelial cells Hemorrhages are not unknown, and erosion is sometimes evident It appears reasonable that along an alimentary surface in this degraded condition absorption can go on much more rapidly and extensively than is the case through an uninjured mucosa What is believed by Joachimoglu to happen after repeated feeding of increasing doses of arsenic is a gradual improvement and recovery of the mucosa so that it becomes more resistant to the irritant and necrotic influence of arsenic, so far as this applies to the administration of arsenous oxid With the restoration of the alimentary mucosa, which may thus be said to become more tolerant to the destructive action of arsenic, the exaggerated absorption of the rather insoluble poison, through a damaged membrane, leading to the rapid toxicity in acute cases, is replaced by a more normal and characteristically poor absorption of the substance

How are these assertions to be reconciled with the statements that among those rendered tolerant the habit of eating arsenic is not deleterious? Unless arsenic fails to be absorbed to any significant extent in such individuals, as Cloetta believed, or unless, as others have contended, the tissues in general become more resistant to the toxic action of this poison, it is difficult to reconcile the existing reports It is alleged, for example, that the Styrian arsenic-eating peasants live to old age and that no symptoms attributable to the poison have been noted This has the ring of true immunity Joachimoglu is inclined to extreme skepticism toward all such assertions He points out that the statements handed down in the toxicologic literature go back to the days when the symptoms of chronic arsenical intoxication were little appreciated Catarrhal inflammation of the respiratory tract is a characteristic of mild chronic intoxication, and hoarseness appears to be widespread among arsenic eaters[5] Cases in which the supposedly tolerant persons succumb to arsenical poisoning are not unknown It is not at all unlikely that a careful reinvestigation of the physical condition of arsenic eaters and their medical history would reveal sufficient evidence to warrant the abandonment of the hypothesis of a general cellular immunity or tolerance to arsenic To upset tradition, however, is not an easy task

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[1] Morishima K Arch internat. de pharmacod 1900 vii 65

[2] Compare Brouardel G Etude sur l arsenicisme Paris 1897

[3] Cloetta M Ueber die Ursache der Angewohnung an Arsenik Arch f exper Path u Pharmakol 1906 liv 196

[4] Joachimoglu G Zur Frage der Gewöhnung an Arsenik Arch f exper Path u. Pharmakol 1916 xxix 419

RELATION OF OXIDATION TO METABOLISM

The idea that respiration directly causes or regulates metabolism was abandoned by physiologists many years ago, especially as a result of the investigations of Voit and Pfluger, who by independent methods demonstrated the untenability of this view The intake of oxygen does not cause metabolism, but on the other hand the chemical reactions going on in the organism determine the amount of oxygen to be absorbed The combustion processes in the living body may proceed for some time quite independent of the extent to which oxygen is supplied Even in the days of Lavoisier it was appreciated that the utilization of oxygen in the organism is not enhanced by a greatly increased supply in the respired air The breathing of compressed air or of pure oxygen leaves the combustion processes essentially unaltered Metabolism regulates the respiration As Lusk has expressed it, the metabolism of the tissues, through its oxygen requirement and its carbon dioxid production, changes the condition of the blood and thereby regulates the respiration These are distinctions of fundamental importance[6] The relations of the products of metabolism to the activity of the respiratory mechanism and the resulting regulation of the breathing processes have often been discussed in THE JOURNAL

The hypothesis of a deficient or defective oxidative power has often been called on to explain certain abnormal phenomena Prior to the establishment of our present knowledge of purin metabolism, an increased output of uric acid in the urine was looked on as a sign of deficient oxidation of proteins Sugar in the urine and the condition of diabetes were associated with impairment of oxidation Other instances might be multiplied in which the pathologic manifestation has now been shown not to depend on any lack of oxygen in these cases Respiration furnishes an abundance, and the element is suitably carried and distributed to the tissues Evidently there is little if any occasion to continue to emphasize the doctrine of reduced general oxidation in the body

It is quite another matter, however, to deny that products of incomplete oxidation never appear in the human body, or to fail to take their significance into consideration Many of the intermediary products of metabolism may be formed without the intermediation of an oxidative stage But our life is essentially an oxidative process in its ultimate features, and at some stage sooner or later the compounds which arise in the sequence of reactions known as metabolism must be burned up Imperfect local oxidation is far from being a rarity A reduced local circulation in a portion of a muscle, for example, may produce anemia of the part Lactic acid arises, and failing to be converted into the usual oxidation products, may enter the circulation Active tissue breakdown, combined with insufficient local oxygen supply and the consequent appearance of abnormal products is not unknown Surely no one who recalls the well known genesis of aceto-acetic acid, betahydroxybutyric acid or lactic acid can deny that they may give rise to a transient acidosis Normally these products do not appear in the excreta, they are oxidized in the organism to the final end-products

The free or fanciful use of words and phrases may give rise to misconceptions in science The appearance of protein in the urine is not due to the lack of oxidative capacity on the part of the body Protein is not oxidizable as such in the human organism, neither is sugar or fat Preliminary chemical changes are requisite There is such a thing as a product of incompleted oxidation, when it makes an appearance unexpectedly, one need neither deny its mode of origin nor maintain that it is a symptom of a reduction in the total oxidative power of an organism which may nevertheless have an impaired function in some localized area

Current Comment

MEDICAL ADVERTISING STANDARDS

In the Propaganda Department this week we quote an interesting communication from the editor of a country newspaper to the New York *Tribune* The editor discusses the difficulties of the newspaper man who attempts, intelligently, to censor medical advertising The complexity of the problem prompts him to suggest "that the newspapers of America select some responsible physician as a national censor to pass fairly and conscientiously on all copy submitted and thus to establish a uniform basis of censorship" This is not the first time that a suggestion of this sort has been made by conscientious newspaper men anxious to protect the health as well as the purse of their readers THE JOURNAL has received not a few letters urging similar measures But it is not THE JOURNAL's intention at this time to discuss this interesting suggestion What it desires to point out is the fact that medical journals are in the same position with reference to the acceptance of advertisements of proprietary remedies offered to physicians as are the newspapers in passing on "patent medicine" copy There are few editors of medical journals who would have the temerity to consider themselves competent to determine the validity of the claims made for the various "ethical proprietaries' whose advertisements are submitted to them THE JOURNAL has for years insisted that the "ethical proprietary" problem is so broad that it calls for expert knowledge in various departments of medicine and the allied sciences — knowledge such as no editor or publisher of a medical journal could be expected to possess Recognition of this fact brought about the creation of the Council on Pharmacy and Chemistry In this council the medical journal editor has, what the newspaper editor so much desires, an expert body capable of passing on the merits of proprietary remedies offered to physicians So saturated in commercialism, however, is the profession of medical journalism that we find only a comparatively few medical journals — chiefly those owned and controlled by the profession itself — that take advantage of the expert knowledge brought to bear on the proprietary question through the Council on Pharmacy and Chemistry It is a deplorable fact that the advertising standards of most privately owned medical journals are much below those of the average high-grade lay magazine This condition of affairs will continue until the medical profession demands a "clean-up" Whether that demand will come spontaneously, through an awakened professional conscience, or will be wrung from the profession by indignant public opinion remains to be seen But the change is coming, inevitably

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[5] Von Tschudi, J J Wien med Wchnschr, 1853, iii, 6

[6] Lusk, Graham The Science of Nutrition, 1909, p 31

ANXIETY BECAUSE OF CHANGES IN MEDICAL EDUCATION

Since the campaign for the improvement of medical education began in this country, alarm has been expressed by several individuals because of certain possible results of the campaign Some have worried lest the marked reduction in the number of medical colleges would lead to a dearth of physicians in the United States Others have noticed the greatly increased cost of medical education, and the moderately increased charges for tuition, and are afraid lest only the "sons of the rich" will be able to secure a medical education, which, they say, will result in a "medical aristocracy" Others show much concern lest the higher standards for admission and the demise of numerous low standard colleges will take away all opportunities from "the poor boy" who wants to get a medical education Still others have laid stress on the thinly populated and rural districts which, they reiterate, are "greatly in need of doctors" These statements have been made mostly by persons interested in the continuance of low standard colleges Some, however, have been made by those having no interest in such schools and who are evidently sincere in their expressions of anxiety There are, indeed, fewer colleges, students and graduates, the cost of a medical education has been greatly increased, there has been also a moderate increase in the charges for tuition, entrance requirements have been raised and a lot of inferior medical colleges have ceased to exist It is also granted that rural communities do not have many doctors living in them A right interpretation of these facts will show that there is no cause for alarm On the contrary, great benefits have been derived from the campaign for an improved medical education The chief result is that physicians are being turned out who are better able to serve the public both in urban and in rural communities

NO DEARTH OF PHYSICIANS

The decided reduction in the number of medical colleges, students and graduates, as a result of the campaign for improvement in medical education, was fully expected In 1904 this country had 166 — many more than were needed The use of paid solicitors and the shrewd methods of advertising used by many colleges, and the absence or nonenforcement of entrance requirements, naturally resulted in an enormous enrolment of students The annual output of physicians was correspondingly large What was needed was a larger proportion of high grade and well equipped medical schools, and this was the result obtained Instead of 28,000 medical students and nearly 6,000 graduates each year, only 6 per cent being from high standard colleges, there are now only about half those numbers, but 80 per cent of them are in high standard colleges Even if the output of physicians should be entirely discontinued, there would be no danger of a dearth of physicians for years to come Figures published recently[1] show that the country still has an abundant supply There is one physician to every 691 people in the United States, as compared with 1 to every 1,940 in Germany, 1 to every 2,120 in Austria, and 1 to every 2,834 in France, that is, referring to conditions before the war Instead of cause for anxiety, the reduction in the number of medical colleges and graduates represents a decided improvement Of the ninety-five medical colleges which remain, the great majority have higher and better enforced entrance requirements, they have stronger staffs of salaried and expert teachers, they have more and better equipped laboratories, and have more abundant and better used clinical facilities Physicians coming from these medical schools are better fitted to care for the sick, and to do a larger part in the prevention of disease, than the average of those graduated under former conditions

NO DANGER OF A MEDICAL ARISTOCRACY

The cost of medical education has been greatly increased The larger number of laboratories, equipped with expensive and technical apparatus which the modern school now possesses, the score of skilled, salaried teachers who devote their entire time to teaching and research, and the greatly increased cost of administration have increased manyfold the cost of conducting a medical school At present, therefore, as shown in a recent report,[2] the average cost of teaching a student in eighty-two medical colleges was $419 per year, as compared with $150, the average amount received from each student in fees Although the cost has advanced from the point at which there were large profits for those owning the medical schools, to the present situation, where it exceeds the income from students' fees by 280 per cent, during the same fifteen years tuition fees have been increased by only 25 per cent In eight of the state university medical schools, the fees are very low — less than $100 The excess of expenditure over income from tuition fees, of course, has been met by state appropriations or by private gifts and endowments During the last few years the number of free scholarships for deserving but needy students has been rapidly increased, 296 having been reported last year in forty-two medical schools There is no reason, therefore, to worry lest the greatly increased cost of medical education will result in a "medical aristocracy" It is quite evident also that the opportunities for studying medicine are not going to be "limited to the sons of the rich," but that equal opportunities are going to be open for all, regardless of their financial status

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[1] Proportion of Physicians to Population THE JOURNAL A. M A May 27 1916 p 1736

[2] Finances of Medical Schools THE JOURNAL A M A April 8 1916 p 1115 Tuition Fees and the Cost of Teaching Medicine Current Comment May 27 1916 p 1707

HIGHER ENTRANCE STANDARDS AND THE POOR BOY

Several years ago the argument commonly used by those seeking to perpetuate the low standard medical college was that "the poor boy" would no longer be able to get a medical education It is true that higher entrance requirements will keep out of the medical profession students too ignorant to master the complexities of the present day medical curriculum The opportunities for those who can obtain the needed preliminary education but who are poor in purse, however, have really been increased These "arguments," meanwhile, do not come from the poor boys themselves, many of whom have worked all or part of their way through our better medical schools The deserving but poor boy is the one who usually knows a good school when he gets into it, and the one who perhaps is most capable of looking out for his own interests Meanwhile, he knows, what has repeatedly been shown, that it costs no more in time, and sometimes much less in money, to attend a high grade medical school than it does to attend some of the poorest equipped Class C institutions Tuition fees are lower in some high grade medical schools, particularly in those connected with state universities, than in several which are of low grade Again, the high grade, well endowed medical school usually offers more opportunities for students' self-help than do the institutions conducted solely on students' fees — they have more need of their services and more funds with which to pay for it Finally, it is in the well endowed institutions that the free scholarships, referred to in the preceding comment, are being so rapidly established The present reform in medical education is, therefore, undoubtedly carrying with it the desire to put the opportunity for obtaining a thorough medical training in the reach of every person who is educationally qualified to obtain it

BETTER MEDICAL CARE FOR RURAL COMMUNITIES

During the last few years the most common argument against the higher requirements for admission to medical schools — the "poor boy" argument having been proved to be unsound — has been the small number of physicians in rural communities That there is, and possibly always has been, such a scarcity of physicians in these districts may be granted It is clear, however, that this lack is not due to the increased requirements of medical schools As pointed out by Flexner,[1] the existence during a half century of an overwhelming proportion of low standard colleges did not force practitioners to these districts On the contrary, as pointed out by Heffron,[2] it is the persistent demand of the public for "specialists" that is driving practitioners from the rural districts It is clear that no physician will stay in a community in which he cannot make a living The resident of the small village who can afford to pay for medical service seldom goes to the village physician, but even boasts that he goes to "Dr So-and-So, the famous specialist," in the city As a rule, it is only emergency cases, or patients too poor to go to the specialist, who seek the services of the local physician This tendency has been aided by the advent of the telephone, the automobile and improved roads, now commonly found even in rural districts At the same time, with the better facilities for communication and travel, physicians in nearby cities have been able to triple or quadruple the radius of their practice, and this has resulted in bringing a more abundant and skilled medical care within the reach of rural communities It is safe to state that the average rural district has never had as adequate medical care as at the present time Even where the contrary may still be true, the providing of such service will not be brought about by the continuance of low standard medical schools If mining districts and sparsely settled communities, in which physicians cannot ordinarily make a livelihood, are to obtain adequate medical service, it will be necessary for salaried medical officers to be sent there, either by national or by state governments And the people in such communities will undoubtedly have better medical service if these officers have been trained in high grade medical schools

SCIENTIFIC PRIORITY

Seldom does the true scientist urge a claim for priority in any discovery he may make, the pseudoscientist does This is especially true in medicine As soon as any new fact is demonstrated or an original theory advanced, some one will want to rush into print with unconvincing proof that he originally had the same idea months or years previously Schuster,[3] in his presidential address to the British Association for the

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[1] Medical Education in the United States and Canada, Bull 4, Carnegie Foundation for the Advancement of Teaching, p 15

[2] A Review of the Tendencies in the Practice of Medicine, Jour Social Med, April, 1916, p 61

[3] Schuster, A The Common Aims of Science and Humanity, Tr Brit Assn for the Advancement of Science, 1916, p 3

Advancement of Science, has well stated the psychology of such claims

New ideas may float across our consciousness, but selecting the wrong ones for more detailed study, we waste our time fruitlessly We are bewildered by the multitude of roads which open out before us, and like Poincare when he tries to play chess, lose the game because we make the wrong move Do we not all remember how, after the announcement of a new fact or generalization there are always many who claim to have had, and perhaps vaguely expressed the same idea? They put it down to bad luck that they had not pursued it, but they have failed precisely in what according to Poincare, is the essence of inventive power It may be bad luck not to have had a good idea, but to have had it and failed to appreciate its importance is downright incapacity

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Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest such as relate to society activities new hospitals education, public health etc)

GEORGIA

Personal—Dr John A White, Augusta, has been elected health commissioner of Dougherty County——Dr Henry F Harris, Atlanta, plans to go to Italy at the close of the European War and devote himself to the study of pellagra

Hospital News—Mrs Harry K Gairdner, Elberton has offered a building and site for a hospital to the city of Elberton on the condition that the city equip and maintain it for hospital purposes The building and grounds are valued at about $10 000

Premedical Course—A bill has been introduced in the Georgia legislature which requires two years of a college course as a preliminary requirement for admission to any medical school in the state The bill also provides that there shall be no appeal from the decision of the Board of Medical Examiners as regards the revocation of a license to practice medicine

ILLINOIS

Black Entertains Medical Society—The Morgan-Cass County Medical Society held its annual picnic at the farm of Dr Carl E Black, in Cass County, August 17 The special guests of the occasion were Dr and Mrs William J Mayo, Rochester, Minn Dr Mayo made an address on "Surgical Treatment of Stone in the Kidney" Dr William F Braasch, Rochester Minn spoke on "Clinical Observations of Stone in the Kidney" The members of the Central Illinois Clinical Surgical Association were also guests of the society and took part in the proceedings

IOWA

New Hospitals—The plans for the *John McDonald Hospital* to be erected in Monticello were let August 3 The building is to be 138 feet long and 48 feet wide and the site covers 4 acres of land The building will be three stories and basement in height and will be ready for occupancy January 1 ——Excavations have commenced for the new Atlantic Hospital

Personal—Dr Donald Macrae, Jr Council Bluffs has been made chief surgeon of the Iowa Brigade on duty at Brownsville, Texas——Dr Arthur A Griffis, Tipton, who has been ill with septicemia in a hospital in Iowa City, has recovered and returned home——Dr John P Savage has been elected head of the safety division of the Health Association of Sioux City and Woodbury County

Work of State Board Laboratories—According to reports submitted by Dr Henry Albert director of laboratories for the state board of health, Iowa City, 40 486 examinations and preventive treatments were given in the laboratories during the last two years During the last fiscal year, 25 795 examinations were made Of the examinations made in the biennium, 18,597 were for diphtheria, 4,372 for typhoid fever 6 681 for tuberculosis, 146 for rabies and 1 221 specimens of water were analyzed During the same period, ninety-six persons received the pasteur treatment

MARYLAND

Personal—Dr James J Mills Baltimore, sailed for France on the *Rochambeau*, August 5, for war service with the French army——Dr Howard Bratton, Elkton, has been appointed division physician for the Pennsylvania System during the absence of Dr Henry A Mitchell, chief surgeon of the First Infantry, Maryland National Guard, who is now on the Texas border——Drs Howard A Kelly and Thomas S Cullen Baltimore, are spending the summer near Magnetawan Ont——Dr C Howard Moses, Baltimore, has been appointed chief resident surgeon of the Youngstown (Ohio) City Hospital

Quarantine Is Established—Carrying out a resolution adopted at a special meeting of the Board of Public Safety authorizing him to take steps to protect the city against infantile paralysis, Health Commissioner John D Blake will prohibit children under 12 years of age from attending moving picture theaters He also will establish a quarantine against children from New York, Philadelphia and the Jersey coast The meeting was held at the instance of Mayor Preston, who told the commissioner of health to call in experts if necessary and the situation was discussed with Drs John S Fulton, C Hampson Jones and William W Ford of the state department of health Dr C Frank Jones, acting assistant commissioner of health, and J W Mehling, assistant secretary of the Mechanics and Manufacturers' Association Dr Ford has just returned from the New Jersey coast and New York He detailed conditions there and also in Philadelphia In behalf of his association Mr Mehling talked against the adoption of such drastic measures as would affect the business interests of the city Whether to act at once or await developments occupied the attention of the board and its conferences for some little time Conditions in other places were reported as being bad, and on the theory that "an ounce of prevention is worth a pound of cure," it was decided to act at once Consequently a resolution was adopted recommending that the commissioner of health take such action as he, in his opinion, thinks necessary, in order to protect the health of the city and if necessary put in operation quarantine Dr Blake announced that his order dealing with moving picture theaters probably would go out today It will not apply to Sunday schools, churches or other places where children congregate because atmospheric conditions are not considered as dangerous as in crowded "movie halls" Nor will children be prevented from going to the parks or squares, or other outdoor places of amusement

NEW YORK

Personal—Dr Albert Warren Ferris, formerly the medical expert and Kur-Direktor' for the commissioners of the state reservation at Saratoga Springs has gone into practice in that city No physician is officially connected with the state control of the springs or bath houses

Cleanup in Nassau County—There have been 175 cases of infantile paralysis reported from Nassau County, a number of cases occurring on the estates of wealthy residents of the Long Island summer colonies This has led to a determination to have a thorough cleanup A subscription of $40,000 has been raised by the wealthy residents of the county and the work has been inaugurated by deputy state health commissioner Dr Linsey R Williams, Dr George Draper of the Rockefeller Institute, and a staff of six physicians Two new isolation hospitals have been opened, one at Hicksville and another at Roslyn

State Health Department and Infantile Paralysis—Officials of the state health department have completed a list of fairs and meetings at which attendance of children less than 16 years of age will be forbidden and instructions have been given to health officers that these orders be strictly enforced Plans to hold conferences in the districts in which infantile paralysis has broken out have been completed The first of these conferences took place at Kingston, August 14, at which time Dr Henry L K Shaw Albany, instructed health officers on the various phases of infantile paralysis Dr Fred M Meader Albany, director of the division of communicable diseases of the state department of health, is reported as expressing the opinion that upstate health officers were holding their own in the fight and preventing the disease from spreading Up to August 12 there have been 895 cases in the state the largest number of cases reported thus far on one day being 60 cases on August 11

Psychopathic Clinic at Sing Sing Prison.—The first psychopathic clinic in a state prison began its work at Sing Sing on the return of Warden Thomas Mott Osborne The clinic is in charge of Dr Bernard Glueck, formerly a member of the staff of the Government Hospital for the Insane, Washington, who has made a special study of mental factors in crime and delinquency and who will devote his entire time to the work and will be supplied with well trained assistants At Sing Sing during the last three years, one in forty-five of the prison population have been transferred to the Dannemora State Hospital for the Insane, whereas the admission rate in other hospitals for the insane among the adult male population of the state was only one in 320 Each of the prisoners will be given a very careful mental examination and the clinic will be at all times at the service of the prison in dealing with mental factors requiring attention The funds which make this clinic available have been contributed by the Rockefeller Foundation to the National Committee for Mental Hygiene and will be under the immediate supervision of an advisory board of that committee which will consist of Drs August Hoch, director of the New York Psychiatric Institute, Dr William Mabon, medical director and superintendent of the Manhattan State Hospital and formerly president of the New York State Lunacy Commission, Dr William L Russell, superintendent of Bloomingdale Hospital, Dr George H Kirby, clinical director of the Manhattan State Hospital, Dr L Pierce Clark, consulting physician for the State Hospital for the Feeble-Minded, Randall's Island, and Dr Thomas W Salmon medical director of the National Committee for Mental Hygiene The establishment of the psychopathic clinic is the first step in the organization of an efficient medical service to insure the most careful examination and treatment of every prisoner By this means it will be possible to correct many correctable defects and greatly to improve the mental and physical standard among prisoners

New York City

Personal—Dr Isham G Harris, formerly superintendent of the Mohansic State Hospital, has been appointed superintendent of the Brooklyn State Hospital, to succeed Dr Elbert M Somers, who resigned, August 1——Dr Le Roy B Vail of Flushing, L I, was removed to the Queensborough Hospital for Contagious Diseases on August 11, suffering from infantile paralysis

Infantile Paralysis Brace Fund—Dr Haven Emerson's request for a fund of $15,000 for the purpose of providing braces and orthopedic appliances for the victims of infantile paralysis has met with a ready response Among the larger contributions are $1,000 from Jacob H Schiff, $1 000 from Cleveland H Dodge, $500 from Mrs Hugh H Thompson, and a large number of smaller contributions

The Infantile Paralysis Epidemic—The total number of cases of infantile paralysis reported to the health department, including August 12, is 6,140 and the total number of deaths 1,371 There was a slight falling off in the number of cases reported and in the number of deaths with the break in the hot spell It has been observed that more children die of the disease on hot days than on the cooler days It has been announced that thirty-three nurses provided by several cooperating charitable organizations will begin on August 14 making a biweekly house-to-house canvass in two districts of the city—the lower east side of Manhattan and the Central Avenue district of Brooklyn—districts in which the disease has been the most prevalent——The results obtained from the use of the blood serum of convalescent patients in the treatment of those ill with the disease are said to justify a further extension of this method The health department will make efforts to extend its use——The governors of the New York Hospital opened a branch for infantile paralysis cases on August 11, in the old hospital buildings of the New York Orthopedic Hospital at 126 East Fifty-Ninth Street About 100 patients can be accommodated at the new hospital It is announced that the same precautions which were taken to prevent New York children exposed to contagion from leaving the city and spreading the disease in rural districts will be taken to prevent children who have been exposed to infantile paralysis in the country from bringing it back to untainted apartment houses and tenements Regulations governing the return of children who have had the disease in the country are now under consideration It is thought now that federal authorities will not allow such children to return until after a month's quarantine

OHIO

Personal—Dr William H Pritchard, Gallipolis, has been appointed superintendent of the Columbus State Hospital, Columbus, succeeding Dr Charles F Gilliam, recently deceased——Dr Edmund R Brush, Zanesville, who has been on duty at Columbus Barracks during the mobilization, has been released and ordered to return to his home——Mrs. Maranda M Walker, the wife of Dr Alonzo B Walker, Canton, died suddenly from cerebral hemorrhage, July 10——Dr Kenneth A Clouse and Colonel Thurman R Fletcher, Columbus, and Dr Edward D Harper, Guysville, have been certified for appointment to the position of first assistant medical examiner for state institutions by the State Civil Service Commission——Prof George Neil Stewart, Cleveland, director of the Cushing Laboratory of Experimental Medicine, Western Reserve University, sailed for Europe, July 22——Dr Paul J Hanzlik, Cleveland, associate in pharmacology, Western Reserve University, gave a lecture, July 6, in the Graduate School in Medical Sciences, University of Illinois, Chicago, on "The Behavior of Salicylate in the Body"——Dr Arthur A Eisenberg, formerly pathologic anatomist in U S Army Medical Museum and School, Washington, D C, has been appointed pathologist at Charity Hospital, Cleveland——Dr J J John has been appointed pathologist to the new St John's Hospital

Cincinnati

Lloyd Museum—Mr Curtis G Lloyd, one of the founders of the Lloyd Library and Museum, will put up a new building for the institution at Court and Plum streets The building will be connected with the present museum

Permit for New Medical College—Application for a permit to erect a new medical college building on the new city hospital site has been made by the medical college building commission The building will have a frontage of 298 feet and will have three wings, the center containing an auditorium The estimated cost of the buildings is $250,000

Personal—Dr William A Gardner has resigned as district physician——Dr Edward W Walker has been appointed a member of the Municipal Board of Health, succeeding Dr Samuel E Allen——Dr Augustus Ravogli has been commissioned first lieutenant, M R C, U S Army——Dr. Dudley Webb has been selected as junior staff surgeon on the genito-urinary service of the General Hospital——Capt John D Spelman, First Ohio Field Hospital, has been ordered to Columbus to take charge of the medical supply depot on the staff of Lieut-Col Joseph A Hall

PENNSYLVANIA

Infantile Paralysis—New cases of the disease have been reported from Bristol, Lebanon, Myerstown, Darby, Ursina, Millville, Danville, Middletown, Barnesboro, Hazelton, Claysville and Shade Township in Somerset County There was a total of 273 cases reported in the state up to midnight, August 12——Five of the seventeen state health officers for Lancaster County have been detailed by Dr Samuel G. Dixon, state health commissioners for service on the borders in connection with efforts to stop the spread of the epidemic——The Bucks County Medical Society will devote an entire day to a conference for the purpose of studying the various aspects of this disease and have indorsed a resolution calling for complete cooperation with the state authorities in the campaign against the epidemic

Philadelphia

Medico-Chi Buildings and School to Remain—Students of the Medico-Chirurgical College will not go to the University of Pennsylvania for their medical course in the coming college year as it has developed that the university is hampered for equipment and classrooms Another problem that is facing the cooperating committees representing the two institutions in the merger is the disposition of the buildings of the present Medico-Chirurgical College The hospital of the institution, built several years ago at the corner of Eighteenth and Cherry streets, will be the only building of the institution left intact when the Parkway is cut through The amphitheater, one of the finest in the country, will lose one corner Director Datesman of public works gave Dr Edward B Gleason, professor of eye, ear, nose and throat disease at the college the assurance that the city will be as lenient as possible and that no demolition will be started until the end of the college year

Infantile Paralysis—On August 12, the quarantine period for infantile paralysis was changed from twenty-one days to thirty days by special action of the advisory board of the state department of health This action followed two deaths and the development of a third case in one block in Philadelphia This was on Addison Street, between Fifty-Sixth and Fifty-Seventh streets, where guards were placed at each end of the square in addition to those placed at the front and rear of the houses infected by the plague The advisory board recommended that the commissioner of health communicate with the authorities of cities of other states and arrange for exchange of health certificates whenever such a reciprocal agreement may be deemed necessary A regulation was also laid down that no shipment of second-hand furniture or household goods will be received in Pennsylvania unless accompanied by a certificate showing that it has not come from a house where infantile paralysis existed Members of the advisory board were Drs Charles B Penrose, Philadelphia, Adolph Koenig, Pittsburgh, Daniel P Gerberich, Lebanon, Edgar M Green, Easton, and Samuel G Dixon The toll for August 12, in this city was five deaths with ten new cases reported——The Philadelphia Pediatric Society has made an appeal to wealthy residents for funds to equip and operate a laboratory for the study of this disease and a pathologist whose name is as yet withheld has offered his services free The committee in charge of the project is headed by Dr William N Bradley and is composed of Drs William B Dorwarth, Charles A Fife, A Graeme Mitchell, Alice W Tallant, William Hewson, Henry D Jump and Walter S Cornell——Twelve additional sanitation inspectors have been appointed by Director of Health Krusen to make immediate examination of back yards and cesspools and they have been given police power authorizing them to make arrests in case of flagrant violation of the sanitation laws——The different branches of the Philadelphia County Medical Society held meetings on infantile paralysis during the week of August 14 to 21

CANADA

Provisional Lieutenants in the Canadian Army Medical Corps—A large number of doctors in the Toronto military district have passed the examinations of the Army Medical Corps and have become provisional lieutenants

Beland Still a Prisoner—The latest news of the former postmaster general of Canada, the Hon Dr Henri S Beland, St Joseph de Beauce, Que, is that he is still a prisoner in Germany There have been repeated negotiations to secure his release, but so far without avail He was allowed to go to visit his wife who was ill in Holland, but had to return

Personal—Drs William Spankie, Wolfe Island, and Herbert S Griffin Hamilton have been appointed by the Ontario Medical Council as their representatives on the Dominion Medical Council——Dr H C Hazelwood, Toronto has been appointed medical officer of the One Hundred and Seventy-Sixth Battalion with the rank of lieutenant——Dr Peter McGibbon, Bracebridge, Ont, who has been on active service, has received the military cross for distinguished conduct on the field

Hospital News—Buxton Hospital, England, was formally opened, August 11 Surg-Gen Carleton Jones accepted the hospital as a unit of the Canadian Medical Services The institution will be under the administration of Maj Frederick Guest, St Thomas, Ont One of its special features will be the treatment of troubles arising through shell shock, rheumatic complaints will also have special treatment The hospital was established by the Canadian Red Cross——The Ontario Military Hospital, Orpington, Kent County England, has been formally taken over by the Canadian Militia Department, and the following have been constituted a board to carry out the transfer Colonel Bridges, inspector of Canadian hospitals in England Captain Monks and Captain Carson ——The Hon Dr Robert A Pyne, Toronto, and Premier Hearst of Ontario have gone to England to see if any further aid can be given by the province toward the Ontario Military Hospital at Orpington——At a recent meeting of the Calgary Hospitals Board a discussion took place whether the public wards of the General Hospital should be made free to the residents of Calgary It was contended that the financial loss by such arrangement would not amount to over $10 000 per annum, and that free wards would offer better accommodation and peace of mind to those unable to pay The medical profession opposed any such arrangement The following resolution was adopted 'That in the opinion of this board the present financial conditions existing render it inadvisable and practically impossible to impose any further burden on the taxpayers of the city of Calgary by making free the public wards of the Calgary General Hospital

GENERAL

Army Medical Corps Officers Needed—The surgeon-general of the army announces that preliminary examinations for appointment of first lieutenants in the Army Medical Corps will be held on Sept 5, 1916 Full information concerning these examinations can be procured on application to the Surgeon-General, U S Army, Washington, D C

Bequests and Donations—The following bequests and donations have recently been announced

Allentown (Pa) Hospital a donation of $50,000 from Mrs Sarah C Hunsberger Allentown

Mercersburg (Pa) Academy, donation of $3 000 from T E Houstin, Cincinnati and $1,000 from George A Wood, Chambersburg, Pa to increase the facilities of the school infirmary

To found a school for motherhood at Detroit, $1,000,000, by the will of Mrs Lizzie Merrill Palmer Detroit

Mount Sinai Hospital, New York City, $2,500, by the will of Matilda Davis

Lincoln Hospital for colored patients Durham, N C, funds for the equipment of the tuberculosis ward, donated by George W Watts and W A Erwin

Medical Reserve Corps Legislation—A bill introduced in Congress by Mr Gandy (H R 17125) contains the following provision That in increasing the Medical Corps of the Army as provided in the National Defense Act, approved June 3, 1916, the officers of the Medical Reserve Corps on active duty, irrespective of age and subject to the physical examination now required by law, whose services have been satisfactory and who have been in the military service for at least five years, including contract service, volunteer service and enlisted service, shall be, and are hereby, transferred to the Medical Corps of the Army, with the rank of captains, to take relative rank in accordance with the length of their respective services, but next below all captains, Medical Corps holding that grade at the time of the passage of this act——There are about fifty officers of the Medical Reserve Corps on active duty who have been in the service since 1898——The National Defense Act, approved June 3, 1916 reads in part as follows "One year after the passage of this act the Medical Reserve Corps, as now constituted by law, shall cease to exist"

National Child Labor Bill Passed by the Senate—Under pressure from the president, the Senate, on August 8 passed the National Child Labor Bill (H R 8234) This bill passed the House on Feb 2, 1916, but the Senate amendments were so radical, making the bill much more drastic, that it has been sent to conference As it now stands the bill excludes from interstate or foreign commerce any product of any mine or quarry in which children under 16 years of age have been employed and any product of any cannery, mill, workshop, factory or manufacturing establishment in which children under 14 years of age have been permitted to work at any hours whatsoever, or in which children between 14 and 16 years of age have been permitted to work more than eight hours in any one day, or more than six days in any one week, or after 7 o'clock p m, or before 6 o'clock a m The fact that the particular product to be shipped is not the product of child labor is immaterial, it is sufficient that it was produced by an establishment in which children within the defined age periods are employed for any purpose whatsoever Dealers other than the producers are liable to the penalties of the proposed law unless they have protected themselves by guarantees from the producers that the commodity has been lawfully produced and in event of any such guaranty proving false, the guarantor may be punished "State medical inspectors" are among the local officers authorized to enforce the law, but the term is not defined In the course of the debate on this bill, grave doubts were expressed as to its constitutionality

OUR TROOPS ON THE BORDER

Hospital Train Starts—The hospital train which has been built and equipped at Pullman for service between Washington, the border posts and San Francisco, started on its first trip August 15, under the command of Capt Howard H Baily, M C, U S Army

Contracts Let for Field and Hospital Equipment—Contracts for about $500 000 work of field and general hospital furniture and equipment have been awarded by Lieut-Col Thomas U Raymond M C, U S Army, in charge of the Medical Supply Depot, St Louis The goods are to be shipped to the border

Red Cross Units Projected—Drs Thad Shaw and Henry H Ogilvie are arranging for the establishment of a hospital unit for the management of a base hospital evacuation station in San Antonio The national headquarters has been asked to endorse the movement and to give official instructions for the perfecting of the organization——The city of Eagle Pass has appropriated $16,000 for a Red Cross base hospital and work has commenced on the building The city has prepared to turn over schoolhouses or other public buildings to the government or the American Red Cross for use as hospitals in case of emergency

WAR NOTES

American Ambulance Men Honored—Six members of the American Field Ambulance were given honorable mention in the orders of the day of the French army, August 2 All of these are working in the Verdun region

Red Cross Hospital Units to Be Reestablished—Since October last the Red Cross has been vainly endeavoring to obtain permission from Great Britain to send hospital supplies to the central powers In a communication to the State Department, dated July 28, Great Britain suggests that the American people might accomplish this end by financing American Red Cross hospital units to take the place of those which have been withdrawn from these countries, as the allied governments will permit Red Cross hospital supplies to be shipped to these reestablished units The American Red Cross thereupon requested permission of the central powers through the State Department to reestablish one or two hospital units of six physicians and eight nurses each in each of the countries of the central powers

LONDON LETTER

London, July 31, 1916

The Health of Old Miners

At a general meeting of the Institution of Mining Engineers, Dr J S Haldane read an important paper on the health of old miners in which he pointed out that while up to the age of 50 the death rate from lung disease is much lower among colliers than in the rest of the population, above 50 the opposite holds and there is a marked excess of deaths from bronchitis But the deaths from this disease have greatly diminished since 1890, for which improved ventilation seems to be the cause Fifty years ago miners often worked in air containing so much blackdamp that lamps and candles burned dimly In such air there is usually 2 or 3 per cent of carbon dioxid, which enormously increases the breathing during muscular exertion The breathing is exactly regulated so as to keep an average of about 5 6 per cent carbon dioxid in the alveolar air, and with 3 per cent of this gas in the air a man breathes twice as much air, so as to keep the alveolar percentage right A man doing moderate muscular work in pure air breathes about five or six times as much air as during rest In air containing 3 per cent of carbon dioxid he would be breathing ten or twelve times as much air as during rest and his breathing would be taxed to the utmost He would thus be much more liable to contract emphysema The better ventilation of coal mines is largely a consequence of the greater amount of firedamp and great heat encountered as mines have become deeper

Dr Haldane is inclined to think that both the firedamp and the heat have indirectly caused great improvement to the health of miners Where there is plenty of firedamp there is usually also plenty of fresh and dry air, and no harmful excess of carbon dioxid The proportion of deaths from bronchitis among old miners was higher in Staffordshire in 1890-1892 and 1900-1902 than in any of the other coal fields, and Staffordshire mines are exceptionally subject to blackdamp The excess in bronchitis among old coal miners has been attributed to the breathing of dust, and Dr Haldane was previously inclined to agree with this theory But it is difficult to see why, if dust is the cause there has been so great a diminution in the bronchitis mortality in recent years Coal mines have, on the whole become drier and more dusty with increasing depth and better ventilation, and, if dust were the cause, one would have expected the bronchitis to increase whereas it has greatly diminished Certainly an excess in mortality from bronchitis is associated with the breathing of harmful dust But this excess is accompanied by a far greater excess in mortality from phthisis and begins comparatively early in life unlike the bronchitis mortality in colliers Experiments on animals carried out by J M Beattie show that both coal dust and the shale dust usually associated with it on mine roads are relatively harmless

Further experiments on the same subject have been carried out more recently by Dr A Mavrogordato in Dr Haldane's laboratory for the Medical Research Committee under the insurance act, and attention has been concentrated on the process by which dust is eliminated from the lungs These experiments show that both coal dust and shale dust are readily eliminated by the agency of cells, which collect the dust and then wander out with it into the bronchial tubes, whence it is swept upward by the action of the ciliated epithelium which lines the air passages This ready elimination does not occur with other dusts known to be dangerous and liable, in particular, to predispose to phthisis The phthisis death rate among colliers is not only much lower than in nearly all other occupations, but is even lower than in the exceptionally healthy occupation of farm laborer, despite the advantages of pure air and relative segregation in the latter occupation The low death rate from lung disease among colliers up to the age of 55 is almost entirely due to the relative immunity from phthisis, and this immunity existed in 1850 just as now Above the age of 55 the increased bronchitis death rate in old age begins to tell heavily Coal dust certainly does not kill germs, but it seems probable that the cells which clear out the dust particles clear out at the same time other "foreign bodies," such as tubercle bacilli If this is so, coal dust in moderation is, on the whole, and despite explosions, an advantage to the safety of colliers Town dwellers and smokers may also take comfort to themselves in the thought that, in introducing smoke particles into their lungs, they are educating their lung epithelium to deal with really harmful "foreign bodies" In any case the evidence does not now bear out the theory that the excessive bronchitis of old colliers is due to dust inhalation Dr Haldane does not think that there is any evidence in favor of the idea that the excessive bronchitis in old colliers is due to exposure to changes of temperature Miners do not appear to take harm in this way, so far as Dr Haldane has been able to ascertain, and in other occupations associated with exposure to extremes of weather there is no excess of bronchitis among either young or old

The Treatment of the Wounded in the Great Naval Battle

The medical work of the navy has been planned with a care which has been justified by results At the beginning of the war everything was ready—hospital supplies, equipment, ships Within four days from the declaration of war, hospital ships were fully equipped and on their way to join the grand fleet Had a great battle occurred during those early days, it would have found this department of the navy as well prepared as all the others When in time the battle came, the work proceeded without a hitch During the battle of Jutland Bank the naval surgeons performed a terrible task At first when the enemy was sighted there devolved on them the work of transferring stores and equipment from the sick bays above the armor to the fore and aft distributing stations below it The emergency was sudden and the time short With the closing of the armored doors the time for action was come In their stations they heard the booming of the guns, and soon there crept down to them the fumes of the exploding charges From that time the stations became scenes of fierce and terrible activity In one ship smoke filled the surgeons' rooms at the moment when the stream of wounded began to flow down to them, adding suffocation to the other perils of the work The ship reeled under pounding blows, and staggered in a difficult sea, the concussion of her guns was so great as to preclude the possibility of adequate surgical assistance Wearing gas masks, the physicians did what they could Another ship was holed, and had her electric light cut off The medical station was in darkness, it was foul with the gas fumes from the enemy shells, water poured in by the holes in the vessel's sides Here singlehanded a surgeon toiled by the light of an electric torch until he was ordered to get his wounded away because the ship was sinking This he achieved so well that not a life was lost Apart from the treatment of wounds, the most difficult problem was furnished by the terrible burns These were of two kinds, those due to the ignition of cordite supplies by enemy shells—which are so severe as to amount to an instantaneous mummification—and those due to the flash of bursting shells, which are not usually severe It is interesting to note that the eyes are not affected by these burns, the eyes are quicker than the flame, for they are able to shut before it reaches them

Deaths

John Benjamin Murphy, M D, Chicago, aged 58, died at Mackinac Island, Mich, August 11, from aortitis

Dr Murphy was born in Appleton, Wis, Dec 21, 1857 He was reared on a farm attended the preliminary schools and was graduated from Appleton High School in 1876 and from Rush Medical College in 1879 After serving an internship in Cook County Hospital, Dr Murphy entered into partnership with the late Dr Edward W Lee In 1882 he went to Europe where he studied for two years

Dr Murphy s career as a medical teacher began in 1884 when he was appointed lecturer in surgery in Rush Medical College In 1892 he was made professor of clinical surgery in the College of Physicians and Surgeons, Chicago holding this position until 1901, when he was elected professor of surgery in Northwestern University Medical School, and continued in that position until the time of his death, with the exception of an interregnum of three years from 1905 to 1908 during which he was professor of surgery in Rush Medical College He was also for many years professor of surgery in the Post-Graduate Medical School, Chicago

He became chief of the surgical staff of Mercy Hospital on March 21, 1895, and held this position until the time of his death He was for thirty years a member of the attending or consulting staffs of Alexian Brothers Hospital and was for several years attending surgeon to Cook County Hospital, consulting surgeon to St Josephs and Columbus Memorial Hospitals, and the Hospital for Crippled Children, Chicago

He was a fellow of the American Medical Association, orator in surgery in 1898 and was elected president of the Association at the St Louis session in 1910 He had also served as president of the Clinical Congress of Surgeons of North America and of the Chicago Medical Society, was a member of the American Association of Obstetricians and Gynecologists, a fellow of the American Surgical Association, a member of the Southern Surgical and Gynecological Association, Western Surgical Association, a life member of the Deutsche Gesellschaft fur Chirurgie, an honorary member of the Societe de Chirurgie de Paris an honorary fellow of the Royal College of Surgeons of England, and a member of other scientific bodies

His contributions to the surgical literature were many Cholecysto-Intestinal, Gastro-Intestinal Entero-Intestinal Anastomosis and Approximation Without Sutures' appeared in 1892 In this paper he first described the appliance commonly known as the Murphy button In 1897 he published the reports of his research and clinical work in suture of arteries and veins This article was entitled Resection of Arteries and Veins Injured in Continuity, End-to-End Suture, Experimental and Clinical Research" In the annual Oration in Surgery, delivered at the Denver meeting of the American Medical Association in 1898, his subject was "Surgery of the Lung' and in this paper he advocated the use of nitrogen gas in the production of artificial pneumothorax His research work in neurologic surgery was published under the heading of 'Surgery of the Spinal Cord' in 1907, and his most important recent work on arthroplasty was published in 1912 entitled "Contribution to the Surgery of Bones Joints and Tendons" On Feb 1, 1912, appeared the first issue of *Murphy's Clinics* which chronicled his operations and lectures at Mercy Hospital

In 1902 Notre Dame University conferred on Dr Murphy the Laetare medal He was given the degree of LL D by the University of Illinois in 1905, and by the Catholic University of America in 1915 and the University of Sheffield, England, conferred on him the degree of M Sc in 1908 His most recent honor was given him in June of this year when the Pope made him a knight commander of the Order of St Gregory the Great

John Benjamin Murphy, M D 1857-1916

He had been in poor health for several months on account of aortitis, which caused him intense suffering, and had spent the early part of the summer at Wheaton, Ill The extreme heat of the last month affected him so seriously that it was decided to take him north, and on the Monday before his death he went to Mackinac Island Early on the morning of the day of his death he began to suffer extremely and the attacks of angina continued through the day, his death occurring suddenly at 3 30 p m The body was brought to Chicago and a necropsy was made which disclosed the cause of death to be aortitis Many plaques of lime salts were found in the arch of the aorta and the thoracic and abdominal aorta, and there was pronounced coronary sclerosis

Dr Murphy was a man of great administrative ability and was able to associate with him, and to draw to him young men of great promise in surgery and pathology

When Dr Murphy died the medical profession lost one of the ablest surgical teachers and a clinician of the highest rank one who had contributed much to medical and surgical science, one whose influence was world wide

James G Fergusson, M D, Forfarshire Scotland, Johns Hopkins University Baltimore, 1914, aged 27 who immediately after graduation went to England and on the outbreak of war entered the Royal Army Medical Corps and was stationed at a base hospital for six months afterward commissioned a subaltern in the 'Black Watch , invalided for several months on account of wounds received in battle, was killed in action while serving with the British Army in France July 14

Rowland Cox, Jr, M D, Paterson N J, College of Physicians and Surgeons in the City of New York, 1898, aged 44, a Fellow of the American Medical Association and New York

Academy of Medicine, clinical assistant in the Department of Surgery of the Vanderbilt Clinic, for seven years instructor in operative surgery in his alma mater, died in the New York Hospital, August 2, after an operation on the brain

Carl V Cole, M D, Lake City, Minn , University of Minnesota, College of Homeopathic Medicine, 1904, aged 39, while driving his automobile over a grade crossing of the Chicago, Milwaukee and St Paul road, near Lake City, August 6, was struck by a train sustaining compound fractures of both legs and crushing injuries of the chest from which he died two hours later

Angus McKay, M D, Ingersoll, Ont , Trinity Medical College Toronto, Ont, 1872, F R C S, L R C P, Edinburgh, Scotland, aged 68, for several years surgeon in the Royal Navy, in 1886 a member of the Provincial Parliament for the South Riding of Oxford County, in 1910 and 1911 mayor of Ingersoll, died at his home, May 7, from carcinoma of the stomach

William D Christy, M D, Creston, Iowa, Starling Medical College, Columbus Ohio, 1878, aged 69, formerly a Fellow of the American Medical Association and local surgeon for the Chicago Great Western Railway, who had been ill for ten years as the result of a cerebral hemorrhage, died at his old home in Diagonal, Iowa, August 3

Thomas Alphonso Kenefick, M D, New York and Newport, R I , College of Physicians and Surgeons in the City of New York, 1885, aged 57, a Fellow of the American Medical Association, for many years attending physician to the Newport Hospital, died at the home of his brother in Lawrence, Mass July 30

Orie H Paxson, M D, Christiana, Pa , Jefferson Medical College, 1882, aged 59, for a quarter of a century a druggist and practitioner of Christiana, died at his home, July 24, from the effects of a bullet wound of the head, self-inflicted, it is believed, with suicidal intent, while suffering from melancholia

Edwin B Tefft, M D, New Rochelle, N Y , University of Buffalo, N Y 1864, a Fellow of the American Medical Association, first health officer of New Rochelle, consulting physician to the New Rochelle Hospital and at one time a member of the state board of regents, died at his home, August 6

Martin H Field, M D, Indianapolis, Medical College of Ohio, Cincinnati, 1871, aged 81, physician to the Marion County Jail, for two years secretary of the Marion County Board of Health and for thirteen years physician to the State School for the Deaf, died at his home, August 7, from senile debility

Hugh E Lindsay, M D, Whitewater, Wis , Rush Medical College, 1869, aged 75, formerly a member of the State Medical Society of Wisconsin, for more than thirty years a practitioner of Whitewater, died in the Florence Wheeler Hospital in that city, July 31, from cerebral hemorrhage

John A Redman, M D, Dallas, Texas, Hospital College of Medicine, Louisville, Ky, 1875, aged 68, formerly a member of the State Medical Association of Texas, formerly local surgeon of the Missouri, Kansas and Texas Railroad at Waxahachie, Texas, died at his home, July 29

William Chester Slough, Jr, M D, Emaus, Pa , Hahnemann Medical College, Philadelphia, 1869, aged 70, for several years school director, borough councilman and a member of the local board of health, died at his home, July 30, from cerebral hemorrhage

Alvin Davis Dalbey, M D, McConnellsburg Pa , University of Pennsylvania, Philadelphia, 1886, aged 52, formerly a member of the Medical Society of the State of Pennsylvania, died at his home, May 9, from chronic interstitial nephritis

Alston M West, M D, Memphis, Tenn , University of Pennsylvania, Philadelphia, 1876, aged 67, for several years professor of chemistry, pharmacy, toxicology and hygiene in the Memphis Hospital Medical College, died at his home, July 29

John Bain, Brandon, Iowa (license, Iowa, 1887), aged 73, for more than forty years a druggist and practitioner of Brandon, hospital steward during the Civil War, for many years township clerk and school treasurer, died at his home, July 28

Charles T Grivelli, Young America, Minn (license, Minnesota, 1896), aged 43, formerly a Fellow of the American Medical Association, a member of the Minnesota State Medical Association, died at his home, June 14, from heart disease

James Monroe Vanderpool, M D, Calvin, Okla , Barnes Medical College, St Louis, 1899, aged 56, formerly a Fellow of the American Medical Association, died in a hospital in Wellington, Kan, July 29, from cerebral hemorrhage

Ellis Banning Perry, M D, New York, College of Physicians and Surgeons in the City of New York, 1883, aged 68, a member of the Medical Society of the State of New York; died at his home, July 31, from cerebral hemorrhage

Luther B Etheridge, M D, Wagener, S C , University of the South, Sewanee, Tenn, 1899, aged 42, a member of the South Carolina Medical Association, also a druggist, died at his home, June 24, from cerebral hemorrhage

Eugene A Spenzer, M D, Cleveland Ohio, Cleveland College of Physicians and Surgeons, 1905, aged 47, formerly a member of the Ohio State Medical Association, died at his home, August 1, from malignant disease

Walter John Teasdale, M D, London, Ont , University of Toronto, 1885, L S A London, 1886, aged 54, formerly a member of the London Board of Education, died at his home, May 18, from tuberculous meningitis

Omer C Snyder, M D, Chicago, Chicago Homeopathic Medical College, 1884, aged 60, while on a fishing trip in northern Wisconsin, died near State Line, Wis, August 6, from cerebral hemorrhage

Llewellyn Brown, M D, Norridgewock, Me , Harvard Medical School, 1862, aged 81, formerly a member of the Maine Medical Association, died at his home, June 16, from cardiovascular renal disease

William M Shankland, M D, Clinton, Mo , Missouri Medical College, St Louis, 1885, aged 57, a Fellow of the American Medical Association, died at his home, July 9, from cerebral hemorrhage

Alfred Lewis Dennis, M D, Conneautville, Pa , University of Pittsburgh, Pa, 1892, aged 52, a Fellow of the American Medical Association, died at his home, May 4, from cerebral hemorrhage

William Greenberry Lindle, M D, Sturgis, Ky , Kentucky School of Medicine, Louisville, 1888, aged 60, died at his home, July 30, as the result of a fall through a defective loft in his barn

Daniel F Callaghan, M D, San Francisco, University of California, San Francisco, 1875, aged 70, died at his home, July 27

Nicholas Edward Alford, M D, Augusta, Ga , Toledo O, Medical College, 1887, aged 62, died at his home, July 16

Joe N Dial, M D, Mount Pleasant, La , University of Nashville, Tenn, 1852, aged 87, died at his home, July 17

Marriages

Enoch G Klimas, M D, Philadelphia, to Miss Estella E Brozaitas of Port Richmond, N Y, at Philadelphia, August 17

James Frederick Munson, M D, Sonyea, N Y, to Miss Helen Jane Wilkinson of Manistee, Mich, August 2

Charles Edward Sima, M D, to Miss Anna Dell Johnson, both of Baltimore, at Cumberland, Md, August 1

Edward L Carlton, M D, Canal Winchester, Ohio, to Mrs Josephine A Daukart of Chicago, July 31

Norman L McLachlan, M D, to Miss Lena Gertrude Roling, both of Findley, Ohio, July 27

Elbert Berkeley Talbot, M D, to Miss Madeleine Wallace Lorain, both of Richmond, June 28

Joseph William Walsh, M D, to Mrs Irene Viola von Nagy, both of Brooklyn, August 3

William Wallace Larsen, M D, to Miss Ellen Bolzer, both of LeMars, Iowa, July 19

Clarence Percy Cook, M D, to Miss Frances Hanson, both of Des Moines, Iowa, June 28

Frank Gillingham Morrill, M D, to Miss Mabel Nortrup, both of Havana, Ill, July 29

Boris David Rapoport, M D, Boston, to Miss Eda Rothstein of New York, May 21

Philip Harman Broudo, M D, to Miss Estelle Pruzan, both of Chicago, August 16

Charles E Hyndman, M D, to Miss Ruth Gilliam, both of St Louis, August 2

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

ARTICLES REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require lengthy reports

Radio-Rem

The Radium Therapy Company, Schieffelin & Co, selling agents, submitted to the Council radium emanation generators called "Radio-Rem Outfits," designed to generate respectively 200, 1,000, 2,000, 5,000 and 10,000 Mache units per twenty-four hours

Those who are well informed on the subject of radium therapy are of the opinion that the administration of small amounts of radium emanation such as generated by certain outfits is without therapeutic value. It has been stated that at the Radium Institute of London the minimum preliminary dose is 185 microcuries (500,000 Mache units), and as many as 555 microcuries (1,500,000 Mache units) are employed

In consideration of these facts the Council voted not to accept any radium emanation generator which produces less than 2 microcuries of emanation during twenty-four hours Accordingly, while accepting Radio-Rem Outfit No 5, claimed to produce 10,000 Mache units (3 7 microcuries) and Radio-Rem Outfit No 4, claimed to produce 5,000 Mache units (1 8 microcuries), the Council voted not to accept Radio-Rem Outfit No 3, claimed to produce 2,000 Mache units (0 74 microcurie), Radio-Rem Outfit No 2, claimed to produce 1 000 Mache units (0 37 microcurie), and Radio-Rem Outfit C, claimed to produce 200 Mache units (0 07 microcurie)

This report having been submitted to Schieffelin & Co and their reply considered, the Council authorized publication of the report

Olio-Phlogosis

Olio-Phlogosis, a liquid preparation to be applied externally by means of a cotton pad is advertised by the Mystic Chemical Company, Kansas City, Mo, thus

> Doctor Don t fail to use Olio Phlogo is liberally for Pneumonia Bronchitis and Pleurisy It works quickly Olio Phlogosis is as far ahead of all medicated kaolin plasters as these plasters were ahead of the old time moist and soggy poultices'

A pamphlet advises the use of Olio-Phlogosis in

> ' all cases of Inflammation and Congestion such as Pneumonia, Bronchitis Pleurisy, Croup Boils Carbuncles Rheumatism Swollen Glands Peritonitis Ovaritis as a Surgical Dressing Mamitis [Mastitis (?)] Vaginitis and Metritis (on cotton tampon to deplete these parts) Septic Wounds Old Ulcers Chilblain Eczema Neuralgia Inflammation of the Eyes and Ears Alveolar Inflammation Burns Scalds, Etc

According to the information sent to the Council by the Mystic Chemical Company, Olio-Phlogosis has the following composition per gallon

Ol Gaultheria	drs	8
Ol Eucalyptus	drs	8
Ol Abies Canadensis	drs	2
Ol Thyme (white)	drs	2
Resublimated Iodin crystals	grs	32
Resorcin	drs	1
Acid Boracic C P	drs	2
Quinine Bisulphate	drs	4
Sodium Thiosulphate	drs	3½
Glycerin C P	q s ad gal	1

A nonquantitative formula which appears on the label of a sample bottle sent to a physician enumerates the same ingredients except the sodium thiosulphate

The A M A Chemical Laboratory reports that no free iodin could be detected in the preparation

Apparently, then, Olio-Phlogosis is essentially a skin irritant applied by means of cotton, it can be expected to be just about as effective as the old-fashioned cotton pneumonia jacket, used in conjunction with an aromatic skin irritant, such as camphorated oil or wintergreen or menthol ointment The odor may have some psychic effect, and it is possible that some of the oily matter may be absorbed by the skin That such small amounts, even if absorbed, can produce any considerable systemic effect, however, is highly improbable, and the advice that this preparation be relied on in pneumonia, pleurisy, peritonitis, etc, is pernicious In the few cases of pneumonia in which heat is indicated, the plain cotton pad will usually be found sufficient If the physician considers the addition of a skin irritant desirable, it is easy to select one from the official preparations It will be far more rational to do so than to invoke the aid of a mystic name and a complex formula to which the patient and his family, at least, will be led to give unmerited credit

The claims made for Olio-Phlogosis are unwarranted, its composition is complex and irrational, and the nondescriptive but therapeutically suggestive name is likely to lead to uncritical use The Council voted that the product be refused recognition for conflict with Rules 6, 8 and 10, and that this report be published

FROM A LAY VIEWPOINT

The two items that follow are taken from the New York *Tribune* They appeared in a department known as "The Ad-Visor," published in the interest of honest advertising and conducted by Mr Samuel Hopkins Adams The first item is a letter to "The Ad-Visor" from Mr Huse, editor of the Norfolk (Neb) *News* The comments thereon are Mr Adams'

> I am very much interested in your campaign for pure advertising In the Norfolk *News* which is a country daily, I have barred all cancer cures all rupture cures all piles advertising and we exercise quite a rigid censorship in all our medical advertising We do not allow the word cure to be used and we bar a lot of other similar expressions In the main I have tried to follow the Chicago *Tribune* and the Kansas City *Star* whose ideals I have always considered high, but they publish a good deal of advertising which some papers refuse
>
> The whole situation is so confusing that this suggestion has come to my mind — that the newspapers of America select some responsible physician as a national censor to pass fairly and conscientiously upon all copy submitted and thus to establish a uniform basis of censorship
>
> If this censor were a physician of unquestioned knowledge and equally unquestioned integrity, and at the same time broad minded and unprejudiced so much weight could be given to this opinions that newspapers which estimate public confidence would hardly dare run the copy that such a censor should pronounce fraudulent
>
> Under the present circumstances, one small newspaper can hardly hope to bring about the desired reform and by barring all medical advertising merely sacrifices a very important source of revenue — and revenue which is sorely needed in the publication of a country newspaper
>
> N A Huse

Imagine the storm of derision and resentment which would be stirred up in 'patent medicine" circles should a suggestion such as this emanate from for example, the American Medical Association How bitterly it would be denounced as another plot of the 'Medical Trust" to destroy the innocent and public-spirited nostrum trade! But the suggestion of a national censorship does not come from medical sources It is made by the editor of the Norfolk (Neb) *News* one of the greatest and perhaps the most successful "country daily" in the United States Like many other thoughtful students of the trend of journalism, Mr Huse perceives that the time is close at hand when the American press must dissolve partnership with the agencies of fraud, quackery and poison if it is to retain any considerable measure of public confidence and respect He has made a good start with his own paper but, as he justly intimates, the burden of decision is too heavy for a single institution of modest resources

His plan might perhaps be altered and developed to advantage, as most important plans of reform must be to make them effective For example it may be argued that the responsibility and authority involved in such censorship would be too heavy for one man, and that a board could better do the work On such a board there might well be a chemist of unimpeachable reputation and an advertising man representing some national product of recognized merit

A newspaper which should accept advertising declared deceptive or misleading by such a censorship would, indeed, place itself in an indefensible position

Whatever the composition of the censorship, Mr Huse's suggestion is fraught with the broadest and most valuable possibilities of reform What association of newspapers will have the courage to give it form and substance?

Correspondence

Reversal of Decision in Case of Coffey vs Tiffany and Howard, 182 S W 495

To the Editor —I regret to notice in The Journal (July 29, 1916, p 389) a digest of the decision of the Kansas City Court of Appeals, per Johnson J, in the case of *Coffey vs Tiffany and Howard,* 182 S W 495, without mention of the fact that this decision was reversed and quashed by the Supreme Court of Missouri in *State ex rel Tiffany and Howard vs Ellison et al Judges of the K C Court of Appeals,* 182 S W R 996, decided last February Your medicolegal writer was, no doubt, misled by the fact that the quashed opinion of the Kansas City Court of Appeals was sent in for publication in the *Southwestern Reporter* after it had been reversed and set aside, without notation of that fact, in the advance sheets, though it was noted in the permanent edition I enclose copy of my report of these cases in the *Weekly Bulletin* of the Jackson County (Mo) Medical Society for March 18, 1916

As attorney for the defendant oculists I am familiar with the outrageous pursuit of them in this Coffey case, wherein the plaintiff's attorneys have so far been unable to get a single medical witness to support their unfounded and unwarranted claims In fairness to my clients I think you should promptly state that the decision you reported has been set aside as erroneous and unfounded in its inferences of fact and law

Denton Dunn, Attorney, Kansas City, Mo

[In our Medicolegal Department, this issue p 635, appears an abstract of the supreme court decision —Ed]

Cerates and Ointments in Granulating Wounds

To the Editor —Apropos of the discussion of the use of a secret nostrum of wax, paraffin and resin in granulating wounds (The Journal, Aug 12, 1916, p 516), it should be said that plain, amber petrolatum, to which is added one part of the ointment of zinc oxid to from six to ten parts of the petrolatum, is far better than any such mixture could be, and cheap enough to be ordered in barrels, as a protective and mild antiseptic covering for granulations if used freely on the dressings Under this treatment wounds heal quickly and with a minimum of discharge, the epithelium propagating itself over the greater part of the surface without the need of skin grafting (See my note in the *New York Medical Journal,* April 26, 1913)

The need for protecting healthy granulations from contact with gauze or other dressing as well as from the air has been neglected somewhat since the era of antisepsis No matter how sterile the gauze placed in contact with healthy granulations, innumerable wounds will be produced every time the gauze is removed The granulations remain unwounded if separated from the gauze by a sufficient thickness of the ointment, the whole being covered by the gauze or absorbent cotton and removed once or twice daily Drainage occurs freely about the edges

Carrel fo r amber petrolatum a better preservative of refrigerated l g tissue than the colorless variety, doubtless owing to trac al decolorizing chemicals in the latter

'er, G Betton Massey, M D, Philadelphia

Swallows —It m take more than one swallow to make a summer, but hal swallow of dirty milk can make a summer complaint — *Lincoln (Neb) Health Dept*

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

BATH PRURITUS

To the Editor —I have had for a number of years a personal ailment which has proved intractable That it is not uncommon I know by the number of cases coming under my observation, some of the patients getting perfect results from proper study and treatment, while others, like myself, experience little or no relief Having noticed recently several articles in The Journal bearing more or less on this subject, I thought I might get some help from the study and experience of others

The complaint is an intolerant itching of the skin, following a bath, noticeable more or less over the entire body, but most severe on the lower extremities and particularly from the knees to the ankles It comes in a slightly less aggravated form from the slight friction incident to the rubbing with a Turkish towel, particularly when the skin is moist from perspiration The itching lasts from ten minutes to half an hour, is not influenced by hot or cold weather, and is not increased by the warmth of the bedclothes, as so often seen in old persons It is most severe when I remain in the water but a short time, and is mitigated or entirely absent when I remain more than fifteen minutes Cold cream, oil or other protective gives some relief, but this is not pleasant in the hot weather

A number of years ago I consulted specialists both in this country and in Europe, getting varying opinions as to the cause, but little help Some called it a neurosis, others a disturbance of the alimentary canal At the time I suffered much from periodic indigestion and probably some autointoxication with some of the little neuroses so commonly coincident Diet and proper living corrected this, and I am now in perfect health except for now and then a mild recurrence of the intestinal trouble, from which I no doubt have some auto intoxication When this comes on it begins with a slight headache, rheumatic pains and loose and imperfectly digested stools This I correct with catharsis, restricted diet, etc, but with no change in the itching My habits are and always have been good I smoke very moderately and use no intoxicants, I eat and sleep regularly, eating only simple foods and sparingly of meat I work moderately, get several hours' daily mild recreation, am of normal weight, and the most rigid physical examination reveals no noticeable ailment I use very little tea or coffee, but drink a quart or more milk daily Abstaining from meat and even heavy vegetable proteins makes no change in the itching, but I notice that at those times when the itching is least noticeable my digestion is always at its best

There is nothing in the family history to throw any light except a little tendency to muscular rheumatism and eczema, neither, however, at all marked I have three spots where there is occasional itching irrespective of the use of water the scalp, where an ichthyol ointment gives satisfactory relief, but must be used regularly, and a spot about an inch square on the knee and one a little smaller on the point of the chin which at times cannot be relieved by anything tried so far At these points there is nothing to be seen, not even redness, when the trouble is at its worst

C H K MD

Answer —The foregoing is an accurate description of a classical case of bath pruritus In nearly all cases it is impossible definitely to determine the cause There are probably two factors in the etiology (1) a naturally delicate skin that reacts more than the average skin to causes of irritation, and (2) hypersensitiveness of the skin resulting from some internal disturbance This is probably in most cases a reaction having its origin in the gastro-intestinal tract, for the trouble occurs most frequently in persons who have some disturbance of digestion These patients discover, as in this case, that the itching varies with the condition of the digestion

In all cases it is desirable to relieve digestive disturbances as far as possible In some cases this will control the trouble For example, it is an occasional experience that a person gets rid of a bath pruritus by the radical change in his food which comes by changing from one eating place to another Some cases of bath pruritus are utterly intractable and yield to no treatment

The relief obtained from local measures is very uncertain Almost any bland application that lubricates the skin and gives it some protection is more or less agreeable In summer during the hot weather when greases are uncomfortable, a thin tragacanth jelly to which is added an inert powder may be useful The following formula will give such a preparation

	Per Cent
Powdered tragacanth	0 5
Zinc oxid and calamine	aa 12
Glycerin	12
Water	q s ad 100

The tragacanth, glycerin, and about one half of the water should be heated together until the tragacanth is dissolved The powders mixed with the remainder of the water are then added with stirring This forms a thick mucilage which dries readily on the surface, and which can be easily painted on, or smeared on, immediately after bathing To it either camphor-chloral, camphor-menthol, or camphor-phenol can be added in the strength of from 0 5 to 2 per cent Also the various liquid preparations of tar can be added in the proportion of from 5 to 10 per cent Sometimes these antipruritics are useful Sometimes they are not As to which one will be most useful, or which combination, only trial will show In winter time greasy applications are usually much more efficient Patients with bath pruritus naturally have dry skins This condition is exaggerated in winter, and the patients are usually better off for the application of a fat, such as cold cream, to which an antipruritic has been added

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Massachusetts Boston Sept 12 14 Sec Dr Walter P Bowers secretary of the Massachusetts Board of Registration in Medicine, Room 501, No 1 Beacon St Boston

Missouri Kansas City Sept 18 20 Sec, Dr J A B Adcock, State House Jefferson City

New York Albany, Buffalo New York and Syracuse Sept 19 22 Mr Harlan H Horner Chief Examinations Division, The University of the State of New York State Department of Education, Albany

Illinois January Report

Dr C St Clair Drake, secretary of the Illinois State Board of Health, reports the written examination held at Chicago Jan 13-15, 1916 The total number of subjects examined in was 10, total number of questions asked, 100, percentage required to pass, 75 The total number of candidates examined was 64, of whom 41 passed and 23 failed. The following colleges were represented

PASSED

College		Year Grad	Total No Licensed
Bennett Medical College	(1914 3)	(1915 5)	8
Chicago College of Medicine and Surgery	(1914)	(1915 9)	10
Hahnemann Med Coll and Hosp Chicago		(1915)	2
Jenner Medical College		(1915)	1
Loyola University		(1916)	2
Northwestern University	(1911)	(1915 3)	4
Rush Medical College		(1915)	7
Johns Hopkins University		(1914)	1
University Medical College Kansas City		(1907)	1
New York Med Coll and Flower Hosp		(1915)	1
Meharry Medical College		(1914)	1
Marquette University		(1913)	1
University of Toronto		(1910)	1
National University Athens		(1895)	1

FAILED

College		Year Grad	Total No Licensed
Bennett Medical College		(1915)	7
Chicago College of Med and Surg	(1914)	(1915)	2
Chicago Hosp Coll of Med		(1915)	3
College of Med and Surg Physio Med, Chicago		(1910)	1
Illinois Medical College		(1910)	1
Jenner Medical College		(1915)	1
National Medical University Chicago		(1908)	1
Hospital College of Medicine Louisville		(1904)	1
University of Louisville		(1913)	1
Meharry Medical College	(1911) (1914)	(1915)	3
National Univ of Arts and Sciences		(1914)	1
University of Moscow		(1895)	1

Connecticut March Report

Dr Charles A Tuttle secretary of the Medical Examining Board of the State of Connecticut, reports the practical and written examination held at New Haven, March 14-15 1916 The total number of subjects examined in was 7, total number of questions asked, 70, percentage required to pass, 75 The total number of candidates examined was 18 of whom 12 passed and 6 failed The following colleges were represented

PASSED

College		Year Grad	Per Cent
Georgetown University		(1913)	75 2
George Washington University		(1915)	79 9
College of Phys and Surgs, Baltimore		(1910)	75
Harvard University	(1914) 76 3 89 4	(1916)	80 7
College of Phys and Surgs in the City of N Y		(1884)	89 6
Columbia University Coll of Phys and Surgs		(1905)	85 3
Long Island College Hospital		(1912)	84 6
Temple University		(1914)	75 4
University of Vermont		(1914)	79 7
University of Virginia		(1904)	83 3

FAILED

College	Year Grad	Per Cent
Georgetown University	(1911)	73 4
Eastern University *	(1913)	56 9
Maryland Medical College	(1913)	56 6, 63 4
College of Phys and Surgs, Boston	(1910)	51 1
Jefferson Medical College	(1912)	72 6

* Officially reported as not recognized by the Maryland State Board of Medical Examiners

Wyoming March Report

Dr H E McCollum, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, March 14-16, 1916 The total number of subjects examined in was 10, total number of questions asked, 100, percentage required to pass, 75 The total number of candidates examined was 7, including 1 osteopath, all of whom passed Seven candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent
University of Colorado	(1911)	88 8
Chicago College of Med and Surg	(1909)	76 7
Rush Medical College	(1891)	84 6
Baltimore Medical College	(1900)	82 3
University of Michigan Medical School	(1883)	75 1
University of Toronto	(1914)	87

LICENSED THROUGH RECIPROCITY

College		Year Grad	Reciprocity with
Bennett Medical College		(1911)	Illinois
Chicago Coll of Med and Surg	(1909)	(1911)	Illinois
Northwestern University		(1913)	Utah
Rush Medical College		(1914)	Utah
Lincoln Memorial University		(1910)	Tennessee
Wisconsin College of Phys and Surgs		(1905)	Wisconsin

Book Notices

A Manual of Surgical Anesthesia By H Bellamy Gardner, M R C S L R C P Honorary Anesthetist to the King George Hospital Second Edition Cloth Price, $2 25 net Pp 220, with illustrations New York William Wood & Co, 1916

The subject is presented in thirty-five chapters which deal with the various phases of anesthesia The predominant impression made by the book is the recommendation of chloroform alone or combined with ether To those who still use chloroform the manual will prove satisfactory, but to those who believe that there are both immediate and remote dangers in the use of this drug, the recommendation will materially lessen the value of the book as a guide or help to the student, anesthetist or surgeon in the selection of an anesthetic

Following a chapter on the history of surgical anesthesia a clear, concise review of the duties of the anesthetist is given This chapter deserves the consideration of the experienced anesthetist as well as the novice in anesthetic work The chapter on cardinal principles for the conduction of anesthetic administrations, in which the author clearly states the dangers of obstructed breathing and emphasizes the importance of maintaining a clear airway, combined with the succeeding chapter on anoxemia and asphyxia, is perhaps the most valuable part of the book

Chapter V deals with the signs of anesthesia A description of the method of touching the cornea for lid reflexes is minutely described and recommended as the best indication as to the degree of narcosis Severe corneal ulcerations frequently develop from such an unjustifiable practice With reference to the pupil the author says The size of the pupil of the eye in the different degrees of anesthesia is subject to variations from so many causes that the simple observation of its diameter at any given moment is insufficient evidence of the existing depth of narcosis" The author fails to grasp the fact that it is not the diameter of the pupil which should form the basis of our conclusion as to the degree or depth of narcosis, but its activity to light when the lid is suddenly raised In the same chapter respiration, color of the skin, pulse, muscular system and surface temperature are well defined, as is also the physical type and temperament of the patient in the succeeding chapter Pathologic conditions are well dealt with The same chapter discusses the choice of the anesthetic No doubt the latter will receive the most adverse criticism from American anesthetists and surgeons (the author is a London anesthetist), because of the constant recommendation of chloroform either alone or combined with ether Several pages are devoted to nitrous oxid and the different methods of its administration for general and dental surgery

A short description of the open method of etherization is given, and attention is called to its advantages The closed method and rebreathing are given considerable space, and attention is called to an inevitable anoxemic element due to the rebreathing of expired air

Chloroform alone and combined with ether, and various methods and appliances for its administration, are exhaustively dealt with

The method of producing spinal analgesia is described, and the sane comment is made that "a low rate of mortality from this method of analgesia can only be expected from the greatest care and skill in technic" It is doubtful if shock is produced by the "removal of the breast from the pectoral muscles" or by the "use of the mallet and chisel during mastoid operations," and consequently if shock occurs at such a time it is probably due to hemorrhage The statement that "the effect of shock on the respiratory center produces deep crowing inspiration and laryngeal spasm" must be questioned Such a condition is produced by a too concentrated vapor, and is present when there is no evidence of shock The remainder of the chapter on shock is in other respects in keeping with the general high order of the manual

Nine pages are devoted to adenoids, and attention is called to the dangers associated with anesthesia in this condition Twilight sleep is described but not recommended The closing chapter deals with acidosis Local anesthesia is made conspicuous by its absence

Hippocrates Jones His First Confinement Case and What Came of It An Alleged Poem in Thirteen Cantos By Walter Graves, M D Paper Price, 50 cents Pp 50, with illustrations Wichita, Kansas The Author, 1916

This is a satirical, sarcastical near-poem, describing the brief medical career of an egotistical, superscientifically educated young doctor, who, however, lacked common sense and practical medical knowledge He located in a western town, which was his initial mistake His first and only confinement case was his undoing The nurse—one of the practical kind—finally eliminated the young doctor by "besoming" him out of the room, and assumed charge In the later developments, he is taken in charge by the vigilance committee, and is nursed back to health by the nurse, who finally, for pity's sake, marries him The reading of this "poem" will prove to be a soothing and cool way of passing a half hour

Post Mortem Methods By J Martin Beattie, M A, M D, Professor of Bacteriology, University of Liverpool Cloth Price, $3 25 Pp 231, with illustrations New York G P Putnam's Sons, 1915

This is one of the Cambridge Public Health Series, the editors of which have wisely recognized that promotion of frequent and well conducted necropsies is an important function of public health work The author has produced a book which can be used to advantage especially by practicing physicians and others whose chief activities are not those of the pathologist The directions are clear, the methods simple and sound, the advice eminently practical Special chapters are devoted to medicolegal examinations and to histologic and bacteriologic methods It is an unpretentious work, which fulfils its aims excellently, and it can be recommended especially to those who have occasionally to ma [illegible] on

Miscellany

Improvement in Medical Statistics

Last year the Netherlands Medical Association appointed a committee to study the question of medical statistics, and their first report was recently published in the organ of the association (*Nederlandsch Tijdschrift voor Geneeskunde*, 1916 p 1661) The committee relates that in an examination of the books of the sixty-four hospitals in the Netherlands, chaotic differences were found between the data recorded and the methods of compiling them in the different hospitals Their records therefore cannot be compared, and thus are not a source for dependable statistics The committee deplores this, and makes some suggestions which would remedy this state of affairs In the first place, however, it deprecates any attempt to force uniformity in hospital records The liberty of each institution to record and publish what seems to it important must not be interfered with But certain data should be recorded, and these the committee thinks should be called to the attention of every hospital with the request to conform to the suggestions The committee adds that the suggestions have been restricted to what is absolutely necessary, so as not to add to the *beslommeringen* of the hospital director (This useful and untranslatable Dutch word *beslommeren* means "to involve in all sorts of difficult affairs") The committee suggests, therefore, that the records of each hospital should state

Number of patients January 1, classified by sex

Number of patients admitted during calendar year, classified by sex

Number of patients discharged during calendar year, classified by sex and by age groups

Number of patients died during calendar year, classified by sex and by age groups

Number of patients died within from two to twenty four hours after admittance, classified by sex and by age groups

Number of patients, December 1, classified by sex and by age groups

The classification by sex should include both adults and children

Total number of days of hospital treatment of the patients discharged during the year and also of those who died, including the number of days of hospital treatment during their entire sickness, classified by sex

The last diagnosis of the sickness of the discharged patients, classified according to Bertillon's smaller list, specifying sex and age groups (0 year, 1 4, 5 13, 14 19, 20 49, 50 and over)

Ditto for those that died

Number of available beds December 31

Number of prescriptions filled during the year

Number of necropsies during the year

Number of attendants, male and female, December 31

The report of the committee tabulated data along the suggested lines from the few hospitals where they were available for the year 1914 The tables show the simplest methods for keeping the records in this manner, and a glance at them demonstrates its advantages A later issue of the *Tijdschrift* contains an earnest plea for the great value of medical statistics when interpreted with understanding (see Abstract 62 in The Journal, July 29) They are liable to prove misleading when viewed from the methematician's standpoint alone

Salicylates in Scarlet Fever

The many analogies between scarlet fever and acute rheumatism seem to have been confirmed by the benefit from salicylic medication in the experience of F Ramond and G Schultz with scarlet fever in soldiers They give 6 gm a day, occasionally even more, fractioned throughout the day and night, commencing as early as possible, and keeping it up until the fever and general symptoms have subsided This is usually within three days, but, to be safe, the drug is kept up for another two days It is resumed again the fifteenth day, the dose being reduced by 1 gm a day This wards off the complications which are so liable to develop from the fifteenth to the twentieth days, especially tonsillitis and nephritis If the heart gives symptoms of trouble, the salicylate should be given more cautiously and its elimination in the urine supervised even for this The mortality under this treatment dropped to 0 25 per cent and complications were exceptional and mild—*Bull de la Soc med d hop de Paris*, 1916, xxxii, 866

Medicolegal

A Silence Not Deemed an Admission of Negligence

(State ex rel Tiffany et al vs Ellison et al Judges of the Kansas City Court of Appeals (Mo) 182 S W R 996)

The Supreme Court of Missouri, in this original action in certiorari, as it is called, by agreement of four members of the court, two others dissenting and a third not sitting, orders the record of the court of appeals quashed in the malpractice case of *Coffey vs Tiffany et al* (Mo), 182 S W R 495, reported at some length in The Journal, July 29, 1916, p 389, under the heading "Class of Errors for Which Physicians and Surgeons Are Liable" The supreme court says that, in the disposition of this case, it is not necessary to tread on any disputed ground During the course of the trial the process server, who served the summons on Dr Howard, was permitted to testify to facts which the trial court considered equivalent to an admission of negligence by Dr Howard, stated as follows Plaintiff Coffey brought her suit six months after the alleged injury 'The summons was served by a deputy sheriff who was introduced as a witness by plaintiff, and testified to what occurred at defendant's office when Dr Howard was served Dr Tiffany was not in, and after the papers were served on Dr Howard he and the witness went downstairs (the offices were on two floors), when Dr Howard called upstairs to the clerk who had received plaintiff, and asked if she 'had a record of the Mary Coffey case' The clerk answered that she had, and that plaintiff 'was the schoolteacher that he dropped iodine in her eye and put it out' Dr Howard, who was standing by the side of the witness said nothing Each defendant objected to this testimony and the court sustained the objection of Dr Tiffany, but overruled that of Dr Howard" The supreme court has no hesitancy in saying that the admission of this evidence was error, nor has it any doubt that its admission contravened the announced law by this court, as well as by other courts Under the facts and rules of law, Dr Howard was under no obligations to engage (at long range and with party out of his sight and presence) in a dispute with the girl over a voluntary statement of hers, and one wholly irresponsive to the question asked She was not asked what the record would show, but merely if she had kept a record Her remark amounted to a charge of criminal negligence, it was true, but because Dr Howard, situated as he was, chose to treat such a charge, coming from that particular source, with silent contempt, should not permit such remarks to go in as evidence of an admission of guilt The court added that it did not believe that the verdict could have been got without this testimony of the sheriff, and that if he overheard anything it must have been about *dionin* and not *iodine* of which there was no evidence in the case The court also commented on the lack of showing of any causal connection between the treatment and the blindness, which latter was presumably due to the disease in the absence of competent proof to the contrary

Expert Testimony and Hypothetical Questions

(Kentucky Traction & Terminal Co vs Humphrey (Ky), 182 S W R 854)

The Court of Appeals of Kentucky, in reversing a judgment entered against the company, holds that there was error in admitting a faulty hypothetical question the effect of which it says was almost to force an answer from the witness establishing the plaintiff's cause of action, and without which her miscarriage could not be connected with the accident The court says that expert testimony is regarded by the law as the weakest character of testimony It is a species of hearsay testimony forming an exception to the general rule forbidding the introduction of that character of testimony because of the necessities of the case, and the tendencies of the courts are constantly inclining in the direction of narrowing the rule permitting its introduction, rather than extending it The expert witness, as latter-day experience has taught, always colors his testimony for the side introducing him, and, indeed, we learn from the history of the country that in great centers of population there exist experts following the business of bartering their expert or scientific knowledge to the litigant who can pay the highest price, and while there was nothing to show that the testimony of any of the physicians in this case was influenced by any such considerations, yet it is because of the existence of the facts which the court has stated that the rule of law permitting the admission of expert testimony has been brought to its present condition With this character of evidence being regarded by the law as stated, it is the more important that the circumscribing rules permitting its introduction should be the more strictly enforced The hypothetical question grouping therein the facts forming the premises on which the answer of the witnesses must be based must include no facts not shown by some of the testimony to have existed, nor must it omit any relative fact shown by some of the testimony to have existed This is the universal rule From the authorities it will be found that the rule requires the examiner to incorporate into the hypothetical question, not necessarily facts which have been conclusively proven, but that he must incorporate therein facts only which the testimony tends to establish and such as the jury may be authorized under the testimony to find Nor can his question omit in its incorporation proven facts, or those which the testimony tends to prove which are material and would have a bearing on the principal facts sought to be established or refuted

City Not Liable for Injury from Defective Condition of Pesthouse

(Butler vs Kansas City (Kan), 155 Pac R 12)

The Supreme Court of Kansas says that the city maintained a pesthouse where persons afflicted with smallpox were taken for isolation and treatment The plaintiff's petition alleged that he became sick with smallpox and was taken by employees of the city and confined in one of the rooms or wards of the pesthouse, where each morning he was obliged to start a fire, and that blood poisoning resulted from a splinter of the flooring which entered his bare foot as he walked from the bed to the stove The petition alleged that the city was negligent in maintaining the floor of the room in a defective and dangerous condition The plaintiff recovered a judgment for damages, but that is reversed by the supreme court, which holds that the petition failed to state a cause of action against the city, and the latter's demurrer must be sustained The duty of a municipal corporation to conserve the public health is governmental, and it is not liable for injuries inflicted while performing such duty Where a municipal corporation maintains a pesthouse for the treatment and isolation of persons who have been exposed to or affected with smallpox, it performs a governmental duty, and the rule that the governmental agencies of the state are not liable in an action of tort for either misfeasance or nonfeasance applied to this case

Distinction Between Boils and Abscesses

(Midland Casualty Co vs Mason (Okla) 154 Pac R 1171)

The Supreme Court of Oklahoma, in reversing a judgment obtained by Plaintiff Mason, holds that a special accident and health insurance policy, providing for the payment of indemnity in the event the insured under certain conditions suffers from boils, is clear and explicit, and does not cover disability occasioned by a disease designated as "ischiorectal abscess", and the courts have not the right to enlarge on the plain provisions of such a policy The court says that the plaintiff, so insured alleged that he suffered from "deep-seated' boils There was evidence offered by him that he was suffering with a disease designated as 'ischiorectal abscess,' and that this expression was synonymous with 'boils" The trial court, however, found that there is a distinction between a boil and an abscess, that the term "ischiorectal' merely determines the locality of the abscess, that an abscess is a condition wherein the internal portions of the anatomy are affected, as an abscess of the liver or of the brain, but that a boil is external in involving only the skin, that by a preponderance of the testimony it was shown that there is a good reason why insurance companies should include boils and exclude abscesses in a health indemnity policy, the reason being that boils rarely prostrate or disable the patient, while abscesses usually do, that the one is included and the other excluded as a matter of economy Yet, after making these special findings of fact, the trial court proceeded to render judgment in favor of the plaintiff on the ground that an insurance policy should be construed liberally in favor of the insured, and, inasmuch as the plaintiff paid the premium in good faith and thought he was protected by the policy, he should not be bound by technicalities Was the question presented a technical one? The supreme court thinks not The language of the policy was clear and explicit It insured against boils, not against abscesses If the finding was correct that abscesses are internal, while boils are external, afflictions, involving only the skin, and this court is bound by that finding, the policy conveyed a clear and explicit meaning, which involved no ambiguity or absurdity It insured against boils, and the courts have not the right to enlarge on the plain provisions of the policy and insure against abscesses

Taking Scrapings from Beneath Finger Nails to Test for Blood

(State vs McLaughlin (La), 70 So R 925)

The Supreme Court of Louisiana, in affirming a conviction of murder, says that the Bertillon operator in the office of the chief of detectives of the city of New Orleans was permitted to testify over objection, that on the day of the defendant's arrest, which was the day of the homicide, he (the operator), with the assistant chief of detectives, visited the defendant, then in prison, and "took the scrapings from his finger nails, between the flesh and the finger nails, the dirt of the left and right hands", that he placed the scrapings from the two hands, respectively, in separate envelopes, identified the envelopes, and turned them over to the assistant chief The court holds that the testimony was properly admitted, and its admission violated no constitutional right of the defendant A person charged with murder, by cutting the throat, is denied no constitutional right in having the scrapings from beneath his finger nails, and his clothing taken, though against his will, with a view to their being tested for the presence of human blood Again, the court says that the defendant had no reason to complain, as he offered evidence to show that he had had a fight on the night of the homicide, and that his hands were covered with blood and his shirt a little stained therewith And the testimony of the official chemist of the city was properly admitted to show that the envelopes mentioned above were delivered to him, that he analyzed their contents and found human blood in the "scrapings" indicated as having been taken from the right hand

When an Injury Occurs

(Johansen vs Union Stockyards Co (Neb) 156 N W R 511)

The Supreme Court of Nebraska had in this case the question as to when an injury to one of the plaintiff's eyes occurred, as determining whether he had given notice and made his claim within the time prescribed by the employers' liability act The court says that the act defines the words "accident" and "injury" as used therein, and distinguishes between them An accident produces "objective symptoms of an injury," and an injury includes violence to the physical structure of the body and the natural results therefrom When an accident to an eye, which at first appears not serious, results, after a week or more, in a diseased condition of the eye which destroys the sight, the "injury occurred" within the meaning of the statute, when the diseased condition culminated Here the plaintiff, while he was engaged in preparing a tar mixture for roofing purposes, had some of it strike him in the eye, December 18 The evidence was without contradiction that the employees who were working with him at the time treated the boiling over of the tar and its effects on those working over it in the nature of a joke, not realizing that anyone had been seriously injured Moreover, the plaintiff himself was not aware of the effects that would naturally result therefrom, but went to his home the night after the accident and washed his eye with warm water, and continued so to treat it, without realizing what might result from the accident, for several days, until about December 25, when he was induced to consult a physician, who advised him to go to a hospital and consult an expert This he accordingly did, and was informed that the eye was in a serious condition which might result very unfavorably During this time apparently, from this evidence, the injury resulting from the accident gradually became developed, and it could not be said that the injury resulted from the accident, within the meaning of the statute, before the time it was discovered that it might become permanent, which was some time after December 25 This evidence clearly justified the finding of the trial court, under this statute, that the accident resulted in a total disability to the plaintiff, December 25

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Public Health, Boston

July VI, No 7

1 Place of Nuisances in Law L W Feezer, Boston—p 655
2 Occupational Mortality Experience of 94,269 Industrial Workers L I Dublin, New York—p 663
3 Experience of New York City in Grading Market Milk L P Brown, New York—p 671
4 Reliability of Statements of Cause of Death From Clinical and Pathologic Viewpoints H Emerson, New York—p 680
5 Comparative Bacteriologic Examination of Shell Liquor and Meats of Oysters L A Round, Washington—p 686
6 Live Little Longer Triple Alliance Between Public, Physician and School M E Bingeman, Rochester, N Y—p 694
7 Inoculation Against Typhoid in Maryland F W Hachtel and H W Stoner, Baltimore—p 703
8 One Year's Experience with New Model Vital Statistics Law in South Carolina J A Hayne, Columbia, S C—p 707
9 Analysis of Appendicitis Statistics K Stoumann, Newark, N J—p 714
10 Bacillus Carrier and Restaurant A I Kendall, Chicago—p 726
11 Public Health Publicity E A Moree—p 730
12 Proposed Score Card for Refrigerators W A Evans, Chicago—p 743

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13 *Use of Oxygen in Cystography with Preliminary Report on Use of Oxygen in Pyelography A Granger, New Orleans—p 351
14 Segmentation in Diagnosis of Stomach Lesions P Eisen, Chicago—p 354
15 *Cause and Prevention of Constitutional Symptoms Following Deep Roentgentherapy S Lange, Cincinnati—p 356
16 *Roentgen Treatment of Epithelioma J H Edmonson, Birmingham, Ala—p 358
17 Roentgenographic Study of Pericolic Membrane Involving Splenic Flexure A M Cole, Indianapolis—p 362
18 Diaphragm as Index of Pathology M J Hubeny, Chicago—p 364
19 1 Phenomenon of Water Street 2 Dilatation of Duodenum in Chronic Appendicitis 3 Motility Phenomenon in Some Cases of Gastric Ulcer A Bassler, New York—p 365
20 Easy and Accurate Pelvimetry by Roentgen Ray H W Van Allen, Springfield, Mass—p 367
21 Case of Associated Gastric and Duodenal Ulcer R D Carman, Rochester, Minn—p 369
22 Broncho Esophageal Fistula R D Carman, Rochester, Minn—p 370

13 and 15 Abstracted in The Journal, Nov 6, 1915, pp 1669 and 1670

16 Abstracted in The Journal, Oct 30, 1915, p 1581

Boston Medical and Surgical Journal

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23 *Results Obtained in Treatment of Diabetes Mellitus E P Joslin, Boston—p 147
24 *Definition and Detection of Acidosis in Diabetes Mellitus A A Hornor, Boston—p 148
25 *Blood Sugar in Diabetes Mellitus O F Rogers, Jr, Boston—p 152
26 Nephritis, Tests of Renal Function F W Peabody, Boston—p 158
27 Eye Changes in Kidney Diseases, Their Diagnostic and Prognostic Value P H Thompson, Boston—p 161

28 Physiologic Point of View and Necropsies F H McCrudden, Boston.—p 167
29 Corsets vs Backache and Fatigue A S Cutler, Westborough —p 168

23 **Treatment of Diabetes Mellitus**—The average duration of life of 408 fatal cases under Joslin's observation has been five years, and that of 490 living cases has already reached six years During the year ending May 1, 1915, 211 cases of diabetes came under observation, and of this number 31, or 15 per cent, died, during the subsequent year 314 cases were seen and 37, or 11 7 per cent, died A study of the 37 fatal cases seen this last year shows that death might have been deferred in about one half of these if the methods of treatment now in general use had been adopted In a study of the causes of death of the 408 fatal cases, it was found that two out of every three (66 per cent) died of coma, that 87 per cent of all those who succumbed during the first year of the disease died of coma, and that this was the case in 100 per cent of the fatal cases in children Therefore, Joslin concludes, if the mortality of diabetes is to be reduced, our energies should be directed first toward the avoidance of coma, because the treatment of coma is so unsatisfactory, and, second, particular attention should be exercised in the management of cases of diabetes in the first year following the detection of the disease Furthermore all cases should be persistently followed up, and the good effects of treatment not be allowed to lapse by indifference or neglect

24 **Detection of Acidosis in Diabetes Mellitus**—By a study of the carbon dioxid content of alveolar air Hornor found that normally the tension of carbon dioxid varies between 38 and 45 mm of mercury Among diabetics with slight acidosis, the carbon dioxid tension varies between 32 and 38 mm of mercury, with moderate acidosis between 28 and 32 mm of mercury, severe acidosis less than 25 mm of mercury Nineteen mm of mercury is the lowest tension observed in a patient ultimately recovering from acidosis Nine mm of mercury is the lowest observed in this present study That was in a comatose patient only a few hours ante mortem The acidosis of diabetes mellitus, aside from its clinical picture of exaggerated respiration, drowsiness and rapid pulse, is defined by Hornor as a condition in which the carbon dioxid tension in the blood and, consequently, in the alveolar air is reduced, the acetone bodies in the blood and urine are increased and associated with this is a rise in the excretion of ammonia, glycosuria is marked, and, saving exceptional cases, toward the end of prolonged coma, the carbohydrate balance is markedly negative

25 **Blood Sugar in Diabetes Mellitus**—The blood sugar among patients treated at the Massachusetts General Hospital who had diabetes but who had had no previous treatment, or whose treatment had not been efficient, that is, they were still excreting considerable sugar, Rogers says, was about 0.26 per cent for an average, with variations from 0 76 to 0 16 per cent The highest value that was found (0 76 per cent) was in a man in coma and the next highest was 0 36 per cent, in a very severe diabetic on the verge of coma Values above 0 30 per cent. seem to be uncommon unless there is some difficulty on the part of the kidneys in accomplishing excretion On the other hand, the blood sugar determinations done on patients at the time they left the hospital when they were sugar free, and had been so generally for some days or weeks, showed variations from 0 07 to 0 18 per cent, and averaged 0 12 per cent

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40 Endoscopic Surgery of Esophagus and Respiratory Tract F Roost, Sioux City, Iowa—p 445
41 Relation of Internal Secretions to Neurology and Psychiatry E M Hammes, St Paul—p 449
42 Gastric Diseases Diagnosis J W Shuman, Sioux City, Iowa —p 453
43 Wallingford Investments J J Lambrecht, Minneapolis—p 455

39 **Varicose Veins**—Of 256 patients operated on by Balfour and others according to the Mayo method, letters were received from 161 In no case has the lapse of time since operation been less than one and one-half years In 68 patients the condition was associated with varicose ulcer, in 93 there was no ulcer Thirty-nine (57 4 per cent) of the 68 patients having ulcer were cured, that is, the ulcer had healed, the veins had disappeared, there was no swelling of the feet, and the patients were able to carry on their work without pain, 16 (23 6 per cent) reported great improvement, the ulcer having healed in the majority, but minor complaint of occasional swollen feet after a long day's work, or of some aching in the legs, so that 80 per cent were either cured or improved In 13 (19 per cent) the results were definitely unsatisfactory The ulcer had either failed to heal or there had been periods of complete healing, then pain and swelling sufficient to make the prolonged erect posture uncomfortable Elastic bandages kept some of these patients in a fair degree of comfort, but the operation itself had failed In the 93 patients without ulcer, better results were obtained, 67 (72 per cent) were quite cured, 16 (17 per cent) were improved, while 10 (11 per cent) were unsatisfactory, so that in practically 90 per cent of this group the results were good

Balfour suggests that the causes of failures in the series may have been due in part to the selection of cases, incomplete operation, or lack of care in after-treatment A serious complication occurring with some frequency in the long standing cases is that the chronic congestion and disability incident to ulcer formation undoubtedly predispose these patients to flatfoot, and the breaking down of the plantar arch is associated with the familiar pain common to this deformity The removal of varicose veins in such cases may be successful to the extent of getting rid of the veins, but the expected relief from pain is not derived

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45 Id G Koga—p 149
46 Treatment of Tuberculosis with Cyanocuprol M Otāni—p 187
47 Treatment of Leprosy with Cyanocuprol R Takano, Tokyo, Japan—p 207

44 See Current Comment in The Journal, Aug 5, 1916, p 443

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51 *Bacteriologic Findings in Ozena H C Ward Detroit—p 153
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53 *Immune Reactions in Scarlet Fever G F Dick and G R Dick Chicago—p 175
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58 *Hemolytic Streptococci Found in Milk Their Significance and Their Relation to Virulent Streptococci of Human Origin D J Davis, Chicago —p 236
59 Certain Nonspecific Reactions Obtained with Antigens Made From Bacteria Grown on Serum Media P K Olitsky and E Bernstein, New York —p 253
60 *Bacillemia in Tuberculosis as Shown by Examination of Post mortem Clots From Heart U F Wilson, Ann Arbor, Mich —p 260
61 *Tubercle Bacilli in Heart Clots in Acute Miliary Tuberculosis Complicating Chronic Lymphatic Myelogenous Leukemia R R Dieterle, Ann Arbor, Mich —p 263
62 Multiple Pipet for Complement Fixation Test J M Buck, Washington —p 205

49 **Myxoma-Like Growths in Heart**—In five cases of congenital syphilis of infants referred to by Warthin, round translucent nodules were found in the myocardium, appearing to the naked eye as myxoma-like growths Three cases were newborn infants dying a few days after birth, one was a child 14 months old, and one a child 18 months old Of these cases four presented signs of syphilis and showed the presence of spirochetes in other organs and tissues, while one showed syphilis only in the myocardium The myxoma-like nodules occurred in all cases in the anterior wall of the left ventricle, either near the apex or near the ventricular septum In one case a similar nodule was found on the posterior wall of the left ventricle In three cases there were two distinct nodules in the anterior wall of the left ventricle, one just above the apex, the other higher, over the septum The nodules, which appeared to be nearly round or ovoidal, spherical on section, were all elevated above the general level of the epicardium The largest were 1 cm in diameter, the smallest was 5 mm They extended entirely through the heart wall from epicardium to endocardium, projecting inwardly as well as outwardly on the epicardial surface In all respects they resembled small myxomas, and the first ones seen were at first sight so regarded The hearts of the five infants were much enlarged, dilated and hypertrophic, the walls of the left ventricle being two or three times thicker than normal On microscopic examination these round translucent areas were found to consist of an edematous gelatinous connective tissue, showing remains of atrophic muscle fibers, especially at the periphery

51 **Bacteriologic Findings in Ozena**—Fifty well authenticated cases of typical atrophic rhinitis, the majority of which presented ozena conditions were studied bacteriologically by Ward with the following results Diphtheroids, 43 cases, staphylococci, all varieties, 37 cases, *B mucosus-capsulatus*, 30 cases, Perez' bacillus, 22 cases, streptococci, all varieties, 20 cases, *B proteus*, all varieties, 20 cases; pneumococci, 20 cases, *B pyocyaneus*, 12 cases The author is not ready to accept Perez' bacillus as being the most important etiologic factor in ozena

53 **Immune Reactions in Scarlet Fever**—Complement deviation and cutaneous tests made by Dicks failed to demonstrate any specific scarlatinal virus or antigen in the blood serum or in extracts of spleen or lymph glands Fixation tests with throat mucus as antigen gave in one instance a weak fixation of complement with the serum of a convalescent scarlatinal patient The toxicity of human blood serum for guinea-pigs is increased during the acute stage of scarlatina Positive Wassermann reactions in scarlet fever obtained with the acetone insoluble portion of alcoholic heart extract, the author believes, are strongly suggestive of syphilis

58 **Hemolytic Streptococci Found in Milk**—Hemolytic streptococci having a wide clear zone, Davis says, occur commonly in both pasteurized and unpasteurized (certified) milk These strains vary among themselves They are more resistant to heat than human strains of hemolytic streptococci, and possess little or no virulence for rabbits, therefore in all probability none for man They rapidly acidify and coagulate milk and grow well at 20 C They form short or long chains, but as seen in milk often appear in pairs or a chain of few elements While they are definitely hemolytic (Type B Smith and Brown), the characteristics of the hemolytic zone on plate may vary in certain respects The hemolytic milk strains are different from certain strains of hemolytic streptococci found at times in diseased udders in cows These latter resemble the strains of hemolytic streptococci from human sources, and are virulent for rabbits In Davis' opinion there is no reason to consider that these organisms have any sanitary significance The importance, however, of certain types of hemolytic streptococci in relation to epidemics of sore throat makes it necessary to study carefully all such organisms in milk By itself the hemolytic property has no more value for identification purposes than many other characteristics, but is greatly important on account of the practical value of the blood-agar-plate method as a means of initial separation of human type strains from the many strains of nonhemolytic and feebly streptococci found in milk

60 **Bacillemia in Tuberculosis Shown by Postmortem Clots from Heart**—Wilson examined blood clots from the heart in a case of generalized miliary tuberculosis in which the dissemination was extreme and the tubercles relatively young The patient, a woman of 52 years of age, became ill about Oct 21, 1914, with a feeling of unusual fatigue, fever and slight chilly sensations, increasing toxemia, rapidly progressing anemia, weakness and dyspnea, without any signs of localized disease Death took place on November 29 (Many lesions of tubercle bacilli were found at the necropsy) The white clots and blood found in the right side of the heart were fixed in mercuric chlorid, carefully washed, and embedded in paraffin The sections were floated on warm carbolfuchsin without removal of the paraffin, decolorized, and counterstained with methylene blue, washed, dried on the slide, the paraffin removed by warming and the use of xylene, and the sections mounted in balsam These stained sections were then carefully searched for tubercle bacilli Only four typical slender and beaded acid-fast bacilli were found in the blood clot sections Sections of the tuberculous lesions in the organs stained in the same manner showed the presence of similar acid-fast bacilli in enormous numbers in the focal necroses If the other nine-tenths of the heart blood and clot not examined contained tubercle bacilli in the same proportion as the one-tenth examined, then the entire number contained in the heart blood at time of death would be forty or less In this case, as the disease was in a most acute and severe form and the organisms were being generalized throughout the body in large numbers, the number of bacilli found in the blood at any given moment would have to be relatively small, and the chances for demonstrating their presence by stained smears, cultures, or animal inoculation could not be very favorable In milder cases, and in cases of chronic pulmonary tuberculosis, Wilson says, the chances for such a diagnostic demonstration of the bacilli in the circulating blood would seem to be very small indeed

61 **Tubercle Bacilli in Heart Clots in Miliary Tuberculosis**—A case of primary tuberculosis of the cervical lymph nodes and a widely disseminated miliary tuberculosis (skin, endocardium) was examined by Dieterle The case was one of chronic lymphatic myelogenous leukemia with secondary tuberculosis Four tubercle bacilli to sixty slides, or 1 to 15, were found in the venous blood of the right heart

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64 *Bacteriologic Aspect of Abderhalden Test D Rivas and A C Buckley, Philadelphia —p 297
65 Cytologic Analysis of Shock D H Dolley, St Louis —p 305
66 *Organic Depression of Nerve Cell Produced by Prolonged Ether Anesthesia E E Butler, St Louis —p 325
67 *Experimental Nephropathy From Some Bacterial Poisons J L Stoddard and A C Woods, Boston —p 343
68 *Studies on Paratyphoid Enteritidis Group *Xylose Fermentation* for Differentiation of B Paratyphosus "A" From Other Members of Paratyphoid Enteritidis Group C Krumwiede, Jr, J S Pratt and L A Kohn, New York —p 355
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70 Use of Brilliant Green and Modified Endo's Medium in Isolation of Bacillus Typhosus From Feces H C Robinson and L I Rettger, New Haven, Conn —p 363

71 *Classification of Streptococci W L Holman, Pittsburgh —p 377
72 *Iodin Content of Foods E. B Forbes, F M Beegle, C M Fritz, L E Morgan and S N Rhue —p 445
73 *Is B Abortus (Bang) Pathogenic for Human Beings? L H Cooledge —p 459
74 *Injection of Hemoglobin in Man and Its Relation to Blood Destruction with Especial Reference to Anemias A. W Sellards and G R Minot Boston —p 469
75 Fracture of Arteries O Klotz Pittsburgh —p 495

63 **Changes in Cervical Sympathetic Ganglia**—This investigation is based on a study in fixed tissue of the pathologic changes in cervical sympathetic ganglia removed at operation from sixteen patients with hyperplastic toxic goiter It appears that definite histologic changes do occur in the cervical sympathetic ganglia in hyperplastic toxic (exophthalmic) goiter These histologic changes consist of various stages of degeneration, namely (*a*) hyperchromatization, (*b*) hyperpigmentation, (*c*) chromatolysis and (*d*) atrophy, or (*e*) granular degeneration of the nerve cells All of these are but successive steps in degeneration, which, if uninterrupted, proceed to the complete destruction of the ganglion cells affected Not all of the ganglion cells in any of the ganglia examined were so completely destroyed as to render improbable their return to normal under favorable conditions There is some evidence that in ganglia from cases clinically improved some of the cells have partially or wholly recovered Some of the ganglia contain cells resembling the partially differentiated cells in the ganglia of infants Accompanying the more advanced changes in the ganglion cells are similar degenerative changes in the nerve fibers, and an increase of connective tissue throughout the ganglion, but especially in the outer and middle coats of the vessels, and in the periganglionic tissue In general, the pathologic changes in the cervical sympathetic ganglia are parallel to the stage and intensity of the symptoms of hyperthyroidism, and to the hyperplastic and regressive changes in the thyroid

64 **Bacteriologic Aspect of Abderhalden Test**—Analyzing the results of the work done by Rivas and Buckley it would seem as if the ferment claimed by Abderhalden to be present in the serum of pregnant woman, if present at all, has no appreciable power of digesting placental tissue The irregularity and the unreliability of the test in the hands of others is due to technical errors, the more exact the technic becomes, the greater the number of negative results obtained, and the more evidence of the fallacy of the test

66 **Organic Depression of the Nerve Cell**—According to Butler ether anesthesia produces certain definite anatomic changes in nerve cells of dogs The severity of the anatomic changes in the nerve cell appears to be in direct relation to the length of the anesthesia, allowance being made for individual variations An anesthesia of several hours' duration for several successive days produces almost the same degree of depression in the nerve cells as a continuous one of the same number of hours A state of collapse results from ether anesthesia of eight or more hours' duration This state of collapse is coincident with profound depression, and is considered to represent the end of constitutional effect of a diffusely acting depressant

67 **Experimental Nephropathy from Bacterial Poisons**—In the course of experiments to test the possibility of producing iritis in rabbits by the intravenous injection of some bacterial poisons, kidney lesions were discovered by Stoddard and Woods Staphylococci and streptococci were injected They produced a type of epithelial degeneration in the kidney, usually regarded as very acute A tendency to a disintegrative degeneration of the epithelium of the first division of the proximal convoluted tubule may be common to all cases in which the products of destruction of bacteria reach the blood stream

68 **Studies on Paratyphoid Enteritidis Group**—In a series of cultures representing nearly all the pathogenic types of the paratyphoid enteritidis group, a group of cultures, including all the types agglutinatively, *B paratyphosus* A failed to ferment xylose The authors suggest if the study of further strains shows that this is a constant characteristic, that the xylose negative types from man be considered the paratyphoid A group on cultural grounds Within this cultural group are encountered strains, presumably pathogenic, which differ agglutinatively from the normal A type

71 **Classification of Streptococci**—The classification of streptococci made by Holman is based on the reactions on blood agar and the fermentation or nonfermentation of the carbohydrates, lactose, mannite, salicin, and inulin in serum broth The first main division is made by the reactions on blood agar into the hemolytic and nonhemolytic forms These are then redivided into the lactose and nonlactose fermenters Each group is again divided into the mannit and nonmannit fermenters, and finally into those that ferment salicin and those that do not

72 **Iodin Content of Foods**—The data collected by Forbes and Beegle show that iodin is not by any means a constant constituent of foods, that when present it is usually found in exceedingly minute proportions, and that, in general at least, it must be regarded as an accidental constituent in the sense of standing in no vital relation to the growth of the food products The presence of iodin in most vegetable food products clearly depends on the fact of its presence in the soil, and the lack of a selective capacity in the feeding of plants

73 **Is Bacillus Abortus Pathogenic for Human Beings?**—Cooledgé says he has no proof that *Bacillus abortus* (Bang) is pathogenic for human beings, although it is possible to cause antibodies for *Bacillus abortus* to appear in the blood serum of adults by feeding a milk which in naturally infected with *Bacillus abortus* and which contains the *Bacillus abortus* antibodies Antibodies appearing as above apparently indicate a passive immunity due to the absorption in the large intestine of the antibodies present in an infected milk

74 **Injection of Hemoglobin in Man**—The results reported by Sellards and Minot merely demonstrate that the injection of hemoglobin offers a safe and satisfactory method for studying the metabolism of the blood pigments in man Hemoglobin in solution was injected intravenously, in sufficient quantity to produce a marked hemoglobinuria in the first specimen of urine voided after injection The amount did not produce subjective symptoms in the cases which developed hemoglobinuria, thirteen in number, except in one instance in which an unusually large injection was given As compared with the normal distinctly less hemoglobin was required to produce hemoglobinuria in patients in whom there was evidence of increased blood destruction, more especially in pernicious anemia In secondary anemia due to hemorrhage, or in cases in whom there was no evidence of excessive blood destruction, as a rule no hemoglobinuria resulted after the injection of amounts which regularly caused marked hemoglobinuria in active cases of pernicious anemia In the cases which have been studied, the tolerance to hemoglobin namely, the amount of hemoglobin required to produce hemoglobinuria bore no relation to the red blood count, but it did bear a direct relation to the amount of blood destruction taking place within the body

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102 Resume of Present Knowledge of *Functions of Menstruation* with Reference to Internal Secretion M A Shlenker, New Orleans—p 105
103 Pyelo Ureterography as Aid in Diagnosis of Obscure Surgical Conditions of Kidney and Ureter H W E Walther, New Orleans—p 115
104 *Schonlein's Disease M F Meyer and H T Simon, New Orleans—p 120

97 **Method of Minimizing Pain of Labor**—The method used by Kostmayer is as follows As soon as the pain of the first stage becomes definitely annoying, chloral is given in 10-grain dose and repeated in forty-five to sixty minutes, as indicated, as much as three doses being given, if necessary When the character of the pain changes to the "bearing down" of the second stage, ⅛ grain of morphin is given as soon as this pain is severe enough to warrant it It is rarely necessary to repeat the morphin, though this may safely be done after an hour or two If labor is retarded in the least, or if in the judgment of the physician labor might safely be hastened, pituitary extract is given in graduated doses As the presenting part begins to dilate the vaginal orifice, ether is given by the open-drop method at the beginning of each pain, and continued until the pain subsides

104 **Schonlein's Disease**—In the case cited by Meyer and Simon the arthritis, purpura, urticaria and angioneurotic edema occurred at practically the same time

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6 Extension Splint for Fractures of Humerus D Hingston—p 72
7 *Method of Treatment of Shell Shock E T C Milligan—p 73
8 Gunshot Wound of Spinal Cord and Trachea, Recovery G W Thompson and G W Stanley—p 74
9 Eusol and Other Methods of Wound Treatment C W Duggan—p 74

7 **Treatment of Shell Shock**—During chloroform administration there is a stage before the involuntary struggling stage when a patient is highly susceptible to *suggestion* It is while the patient is in this stage that, Milligan says,

suitable suggestion and stimulation should be used The treatment must be conducted in a quiet room, apart from other patients Chloroform is slowly administered, and suggestion carried out by the anesthetist when the patient has reached the required stage

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18 Early Ether Analgesia D P D Wilkie—p 106
19 Two Cases of Thoracic Aneurysm G J Conford—p 107
20 Case of Perforated Typhoid Ulcer Operation Acute Obstruction Operation Recovery F M Neild—p 107

14 **Digitalis in Aortic Incompetence**—Aortic incompetence by itself, Taylor says, is not only a most serious lesion but its gravity and its discomfort are enhanced if the mitral valve is holding and competent He claims to have records of many cases, in early middle age, who have led, and who still lead, lives of comparative comfort, they having the double lesion, while, on the contrary, others having only an aortic incompetence, suffer dyspnea, faintings and other discomforts, and are incapable of any beyond the slightest exertion Taylor records a number of cases having aortic regurgitant disease who have survived to old age and to whom digitalis has never been given since he has had them under observation, now some ten to fifteen years

15 **Abdominal Pregnancy, Probably Primary**—McCann records the case of a woman, aged 35, tertipara, who had an abdominal pregnancy that went to term The waters were said to have come away There had been very slight labor pains She complained of pain in the epigastrium There was a hard mass in the left side which suggested the fetal head No movements of a fetus could be felt, although she stated that she felt movements distinctly up till the preceding day On vaginal examination the os was only enough dilated to admit the tip of one finger No presenting part could be felt and there was no external hemorrhage her chief complaint being epigastric pain, vomiting and sleeplessness Finally, about two teaspoonfuls of blood passed per vaginam No decidua had been expelled The abdomen was much distended and there was considerable venous engorgement visible in the abdominal walls The abdomen was extremely tender on palpation, especially on the left side over the position of the fetal head and at other points where the fetus was palpable. It was however, difficult to make a detailed examination of the abdomen because of the extreme tenderness as well as the intestinal distention The outline of the uterus could not be defined The breasts were somewhat atrophied and in appearance were not suggestive of pregnancy, and no fluid could be expressed from either nipple On vaginal examination well marked venous distention and blue discoloration were noted The cervix was much softened and drawn upward and the os uteri readily admitted the finger No presenting part could be felt on vaginal examination

An offensive purulent discharge issued from the vagina and the general condition of the patient suggested the presence of a severe toxemia A free median incision was made and as soon as the peritoneum at the upper part of the incision was opened a small quantity of black blood clot presented On enlarging the incision the umbilical cord, of a dark slate color, bulged into the wound The hand was introduced and a rapid exploration made The fetus was grasped by the legs and withdrawn without difficulty The uterus was found to be enlarged to about the size of a five months' pregnancy, with a well-developed placenta, to which the umbilical cord was attached, firmly inserted in its posterior surface slightly to the right side A strong odor of ammonia was perceptible during the operation suggestive of the presence of urine in the peritoneal cavity, although the amount of intraperitoneal fluid was inconsiderable The intestines were carefully packed off with sponges and a rapid supravaginal hysterectomy performed, leaving the appendages in situ The placental attachment seemed to fade away gradually on the lower part of the uterus, leaving the floor of Douglas' pouch covered only by the remains of the amniotic sac Further remnants of the amniotic sac, brownish black in color, were found on the posterior abdominal wall, the uterovesical pouch, the descending and pelvic colons, the transverse colon and omentum, the ascending colon, and the peritoneum lining the abdominal wall Although the fetus was dead yet there were no adhesions of intestine or omentum to prevent its rapid and easy extraction

The fetus of a female weighing 7 pounds had reduced full development within the abdominal cavity of the mother It measured 14 inches from the vertex to the coccyx The trunk and limbs were perfectly developed, but the head was enlarged, suggesting early hydrocephalus The umbilical cord, 15 inches in length, was normally developed and was attached to a large well-formed placenta The main placental mass was perched like a cap on the upper and back part of the uterus, while it spread laterally outward and still more downward so as to hide completely the uterine surface

Practitioner, London

July XCVII No 1

21 Effects of Recent Legislation on Sickness and Accident Claims J Collie—p 1
22 Treatment of Diabetes Mellitus by Alimentary Rest O Leyton—p 24
23 Recent Work on Ophthalmology L V Cargill—p 44
24 Reaction of Child to Faulty Environment H C Cameron—p 61
25 Methods Employed in Roentgenologic Department in Military Hospital R J Reynolds—p 73
26 Treatment of Infected War Wounds with Special Reference to Use of Antiseptics 'Warmth and Fresh Air P R Cooper—p 80
27 Extreme Case of Dropped Transverse Colon in Young Girl J F Rey—p 85
28 Symmetry in Disease F Tresilian—p 88
29 Bullet Wound of Thorax Presenting Unusual Features R. J G Parnell—p 92

Bulletin de l'Académie de Médecine, Paris

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30 Prophylaxis of Venereal Diseases (Sur la lutte contre les maladies veneriennes et la syphilis) Gaucher and others—p 761
31 *Disturbances in Vision with War Wounds of the Orbit Sparing the Eyeball (Des desordres de l appareil visuel dans les traumatismes de l orbite par armes a feu avec conservation du globe oculaire leur pathogenie) Lagrange—p 771
32 Contamination of Oyster Beds at Marseilles (Analyse bacteriologique des huitres vendues a Marseille) A Gigon and C Richet—p 781
33 Treatment of Hay Fever (Le traitement du rhume des foins) P Bonnier—p 785
34 Standardization of Clinical Thermometers (Note sur l exactitude des thermometres medicaux et leur controle) P Woog—p 787

31 **Injury of the Orbit Sparing the Eyeball**—Lagrange analyzes the various factors at work as he studied them in 179 cases of fracture of the orbit, citing a number of typical cases from the five principal groups of such injuries

Lyon Chirurgical

March April XIII No 2 pp 213-404

35 *Pathologic Anatomy of Direct Lesions from Fracture of the Skull in War (Anatomie pathologique des lesions immediates dans les fractures penetrantes du crane par projectiles de guerre) A Latarjet—p 213
36 *Importance of Early Operative Treatment of War Wounds of the Skull (Sur les plaies du crane par projectiles de guerre a l avant) L Sencert—p 283
37 *Treatment of War Wounds of the Skull (Considerations sur le traitement des blessures du crane par projectiles de guerre) X Delore and L Arnaud—p 328 (Traitement des plaies du crane dans les formations de l avant) G Cotte—p 3 8 (Les plaies penetrantes du crane a l avant) G Ti erand—p 380
38 Indications for Operating for War Wounds of the Skull A Rendu—p 387

35 **Gunshot and Shell Wounds of the Skull**—This entire issue is devoted to penetrating wounds of the skull Latarjet devotes sixty-nine pages to a study of the direct and immediate injury of the skull, showing that this is almost invariably so extensive that there may be severe injury of the brain when the skull does not seem to have been much damaged His forty-nine illustrations show the various types of wounds, comparing the lesion found in the brain with the aspect of the skull before it was opened The sequesters from an anteroposterior or oblique fracture were generally driven in deep, some were found 8 and 10 cm from the surface With a tangential fracture the sequesters were close to the surface In all the cases the extent of the brain injury is greater than the injury of the skull A fissure is liable to be found wider and deeper farther along In one case a fissure started 3 cm beyond the trephine hole and curved forward below, while another fissure was 8 cm long Neither had been discovered at the trephining done for a nonpenetrating fracture of the parietal bone The man died from meningitis a week later, evidently infection had entered by the fissures

Latarjet advises to open up the beginning of the fissure and work a wick wet with tincture of iodin between the dura and the skull, following the track of the fissure for some distance, and thus excluding them from the main focus The fissures are formed more or less by the tearing open of the sutures Subarachnoid hemorrhage is another reason for ample trephining, at least to the peripheral limits of the brain lesion His practice now is to make the trephine opening not according to the injury of the dura but according to the damage done to the brain, that is for 2 or 3 mm beyond the limit of the lesions of the pia Visible sequesters are removed and the brain is explored very delicately and lightly tamponed with a tampon wet with weak tincture of iodin He then seeks to wall off the focus by working very thin wicks, wet with the same, between the skull and the dura In case of fissure the wick is worked along under it as far as possible Another set of wicks is then worked between the dura and the brain, to form a complete wall around the focus and for more than 1 c c beyond This crown of wicks aids in draining subarachnoid hemorrhage while it keeps septic matters from spreading from the focus, and starts the formation of adhesions to limit this still further Gauze is then spread over the whole The next day the dressing is renewed but the wicks are not disturbed They are merely moistened anew with the weak tincture of iodin on a tampon, merely the central gauze over the focus is renewed The wicks are not changed until the sixth or eighth day None of his patients thus treated have died from primary meningitis

36-37 **Operative Treatment for Wounds of the Skull**—Sencert analyzes his experiences with 234 gunshot and shell wounds of the skull during the first ten months of the war An operation was done and the case traced in 163 All but 59 left the hospital in good condition, but the present status could be ascertained only in 71 instances Of these 71 patients 25 per cent died, practically all within three months after the operation Of the 47 (75 per cent) living, 5 have returned to active service at the front and 2 are doing barrack service This 75 per cent of permanent cures came to Sencert as a very comforting surprise, confirming him in the conviction that immediate and systematic intervention should be the invariable rule for wounds of the skull as affording the only chance for recovery

Delore and Arnaud affirm the same, adding that immediate intervention, to forestall infection, is the only means of salvation Tardy intervention should be formally rejected A deep wound in the brain should be drained, but not with gauze Gauze favors retention, sticks to the brain substance and permits meningo-encephalitis to develop, a small rubber drain is better to clear out the products generated in the depths of the wound Recovery is by no means infrequent with this provided the skull is not fissured too extensively and that the cavity of the ventricles has not been damaged If meningitis or encephalitis develops, lumbar puncture has both a diagnostic and therapeutic influence, and roentgenoscopy will reveal any foreign bodies present Both the point where the projectile entered and where it left the skull should be trephined If the dura is intact but the brain does not pulsate there is a hematoma below If there is no pulsation with change of position, the dura should be incised at once Secondary opening of the dura is risky, but immediate incision wards off compression of the brain and secondary irritation of the meninges War wounds of the base of the skull are like those in civilian practice

Cotte is also a partisan of immediate incision of the intact dura when contusion or hemorrhage below is suspected or seems probable Tisserand reiterates that, aside from actual destructive lesions and fulminating hemorrhage, infection is responsible for the fatalities from skull wounds Hence the wound should be made surgically clean at the first-aid station and an operation should follow at the earliest possible moment In his 100 operative cases only one died of the 36 with intact dura, but 25 died of the 64 with the dura opened, including 2 whose dura he had incised as there was no pulsation in the brain This has converted him to the view that the intact dura should be respected

Paris Médical

July 8 VI, No 28, pp 37 52

39 *Epidemic Pneumococcus Septicemia in Persons from the Tropics (La pneumococcie epidemique des tropicaux) P Carnot and de Kerdrel—p 37
40 *Abortive Treatment of Infection in War Wounds (Le traitement abortif de l'infection des plaies de guerre) R Gaultier—p 43
41 Tardy Localized Tetanus in Muscles of Abdomen and Chest P L Marie—p 49

July 15, No 29, pp 53 68

42 Transportation of Wounded in Aeroplanes R Blanchard—p 53
43 *Paratyphoid Ulceration and Proliferating Colitis F Rathery—p 55
44 Putrid Infection with Multiple Gangrenous Embolism, Two Cases Deguy—p 62
45 *Mental Derangement in Paratyphoid A Infection (Sur les determinations psychiques des paratyphoides) P Merklen—p 64

39 **Epidemic Pneumococcus Septicemia**—Carnot and de Kerdrel comment on the peculiar susceptibility to pneumococcus infection of persons in the tropics or recently leaving there Among the troops now in France from the French colonies in Annam and the Senegal, they have encountered over a hundred cases of what seems to be a pneumococcus syndrome about half way between ordinary pneumonia and experimental pneumococcus septicemia It is evident that this pneumococcus septicemia is one of the dangers to be reckoned with in transplanting persons from the tropics Special and general measures to ward off the pneumococcus should be enforced It affects such persons differently from Europeans (This article has several long gaps—one is over half a column long—showing merely blank paper where certain statements had been suppressed by the censor)

40 **Modern Treatment of War Wounds**—Gaultier has been studying with the microscope during the last four months the clinical evolution of wounds under the various methods of treatment in vogue His research has confirmed the assumption that every war wound is infected to start with, and it has further demonstrated that the clinical findings, the aspect, etc, are not enough to tell what is going on in the wound Its course cannot be estimated without the aid of the microscope, and this is an essential element in Carrel's technic The originality of his method consists in constantly renewing the disinfectant used, ensuring that it reaches every point of the wound, with repeated bacteriologic control This shows the exact moment when it is safe to close the wound, and this hastens the healing immeasurably and restores conditions to approximate normal much more completely Gaultier gives an illustration of his improvised laboratory such as can be fitted up anywhere in connection with a surgical service, with a microscope and some slides and stains He was unable to give Delbet's pus-culture method a thorough trial as the wounds healed without suppuration under the Carrel treatment, and no pus could be obtained for examination

43 **Paratyphoid Colitis**—Rathery had over 1,000 paratyphoid cases in his service during the past year, and over

4,500 cases of typhoid (Zuydcoote hospital) Ulcerative and proliferating colitis was observed in some of the paratyphoid cases The mucomembranous form was most common, but there occurred also a dysenteriform colitis, and the ulcerations sometimes perforated All the cases observed were of the B type In the mild and moderate cases, enemas of methylene blue or silver nitrate answered the therapeutic purpose but all measures failed in the more serious cases The two men with the dysenteriform type died four or five months after the close of the paratyphoid fever, the persisting diarrhea wasting each patient to a skeleton In some of the cases the colitis first made itself manifest by perforation of an ulcer In others the clinical picture was that of dysentery

45 **Paratyphoid Delirium.**—Merklen also has encountered a number of cases of paratyphoid with as severe a course and as threatening complications as he has ever known with genuine typhoid In a group here described there was actual mania or at least complete delirium and loss of memory The paratyphoid was of the A type in all these four acute toxi-infectious psychoses All the patients recovered Merklen noticed, however, that there was some predisposing mental trait or taint in each case "Cultivation of the blood revealed the microbe, but it was the microbe that revealed the mental taint"

Presse Médicale, Paris

July 3 XXIV No 37 pp 289 296

46 *Encysted Form of Amebas in the Stools, and Their Importance in the Diagnosis and Pathogenesis of Dysentery (Les kystes amibiens) P Ravaut and G Krolunitski —p 289
47 Serodiagnosis of Typhoid and Paratyphoid A Cade and E Vaucher —p 291
48 *Preventive Treatment and Dangers of Talipes Equinus after War Wounds of the Legs (Notes sur le traitement preventif et l importance de l'équinisme chez les blesses de guerre) P Audion —p 292

July 6 No 38 pp 297 304

49 *Abscess of Liver and Trench Diarrhea (Abces du foie et diarrhee des tranchees) F Rathery and L Bisch —p 297
50 First Aid for Wounds of the Skull (A propos du traitement primitif des plaies du crane) B Cuneo —p 299
51 *Extraction of Projectiles in the Lungs (Regles de l extraction des projectiles intrapulmonaires a la pince sous ecran) P de la Villeon —p 300

July 13 No 39 pp 305 312

52 Principles for the Rational Diagnosis of Pulmonary Tuberculosis E Rist —p 305
53 Localization and Extraction of Projectiles in the Brain E J Hirtz —p 307

46 **Ameba Cysts in Diagnosis of Dysentery**—Ravaut remarks that amebas are found in the stools only during a comparatively brief phase of the dysentery, and they are liable to escape detection On the other hand, the encysted form of ameba is found constantly in the stools through the entire course of the disease They are readily shown up by the microscope when a scrap of stool is examined, or the specimen can be stained with hematoxylin after fixation with the fumes of osmic acid Several may be found on one slide or many slides may have to be examined before one is discovered Their elimination may be hastened with a purgative or by intravenous injection of 0 01 or 0 04 gm cyanid of mercury The cysts persist intact in the stools for at least two days and they can be kept longer by diluting the scrap of stool with formaldehyd They are small globules with a mother-of-pearl reflection and from one to four nuclei in each The protoplasm is limpid but with a dull reflection like porcelain, and it usually contains groups of rods or irregular masses of a refracting substance that has been described under the name chromidium Two illustrations show these cysts and those of the colon ameba which are very much larger and have from one to eight nuclei Among the 169 cases of dysentery at the hospital in his charge in the north of France, living amebas were found in forty-seven, and cysts alone in ten cases The cysts did not appear in the stools until between the third and the sixteenth day and only on frequently repeated examination Most of these patients had been under treatment for years for supposed different ailments The discovery of the parasites and appropriate treatment soon cured the whole trouble Watching out for cysts is also of great assistance in estimating the effect of treatment from day to day He has found a combination of arsenic and emetin more effectual than the latter alone In examining the attendants and patients at the hospital, for carriers, ameba cysts were found in thirty-four and only ten of these were free from dysenteric symptoms Thus there were 5 per cent healthy carriers The figure for healthy carriers in the tropics is only 10 per cent Before the war, amebic dysentery was rare in France Landouzy could find in 1914 only fourteen cases recorded in the course of nine years, but Ravaut has personally encountered twenty-five cases in the last few weeks, all in persons who have never been out of the country The ameba proper is frail and short-lived but in the encysted form it is hardy and can long lie latent, resisting the digestive juices, and when favorable conditions appear it changes into the ameba proper and thus generates dysentery Not only those who have had dysentery and those with abortive attacks but the healthy carriers of ameba cysts have been sowing them during the war, the conditions of warfare contributing to propagate the infection as these persons—wounded, sick, convalescent, on furlough, etc —may have spread the parasites all over the country

48 **Talipes Equinus as Sequel of Wound of the Leg**—Audion calls attention anew to the grave deformity almost certain to be entailed if men wounded in the leg are allowed to walk on the toe of the foot and hold the foot at other times in this pointed position, which speedily becomes permanent talipes equinus He says that if we look at our own feet in a mirror as we walk, we will see that at every step the foot takes the talus position more or less This is the position that should be fostered, the foot immobilized or being spared should be held in a medium talus, and none should be allowed to step on the toes of the foot If the talipes equinus has become incorrigible, a course of plaster casts may be necessary to overcome the deformity

49 **Trench Diarrhea**—Rathery and Bisch relate that emetin has a surprisingly favorable action in trench diarrhea This sustains the assumption that the trouble is actual dysentery, and this was further confirmed by the discovery of abscesses in the liver in four of their cases The clinical picture was that of ordinary dysenteriform colitis dragging along from one to four months, and no amebas were found in the stools or pus from the liver Two of the four men had lived in northern Africa but the others had not Roentgenoscopy gave instructive findings in each case, showing in one an accumulation of fluid both below and above the diaphragm, the abscess in the liver being accompanied by a pleuritic effusion The men all promptly recovered after evacuation of the abscesses

51 **Projectiles in the Lungs**—De la Villeon reports fifty-one recoveries in fifty-one cases in which he removed the projectile from the lungs under roentgenoscopy This success was due, he thinks to his taking the seven precautionary measures which he here describes locating the projectile with precision, using bullet-seizing forceps with fenestrated blades, introducing them at an angle never less than 45 degrees in relation to the shadow cast by the projectile, working in sound tissue, and avoiding the danger points of the intercostal vessels and the hilus If the projectile is in the hilus, it is better to incise the lung without wasting time on the forceps, and this is preferable also when the projectile is very large The parenchyma of the lung is so soft and so elastic that the blood and air vessels yield and spread apart of themselves as the blunt-edged forceps enters the tissue The vessels spread apart, their contents are expelled, and the empty vessel collapses as the instrument advances All his operations were done after some time had elapsed and the wound had quite healed The projectile was found from 2 to 12 cm below the surface, and the wound healed without fever The patients were up and about by the third day

Progrès Médical, Paris

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54 *Disinfection of War Wounds P Barbarin —p 93
55 *Protracted Cerebrospinal Meningitis Requiring Trephining Puncture. F Ramond —p 95
56 *Treatment of Ulcers and Wounds that Refuse to Heal (A propos des plaies atones) F Masmonteil.—p 96

57 Contributions of the Military School and Hospital of Val de Grace to Medical History, especially to Internal Pathology Bonnette —p 100

July 5, No 13, pp 105 116

58 *Epidemic Cerebrospinal Meningitis F Ramond —p 105
59 Mycosis from Scopulariopsis Koningi A Sartory p 107
60 Plaster Bed for the Limb to Permit Removal after Compound Fracture ("Le Platre circulaire" pour l'evacuation des blesses (A Bernard —p 108
61 *Intravenous Injections of Isotonic Physiologic Solution Made with Sodium Citrate M Chaton —p 110

54 **Disinfection of War Wounds**—Barbarin has served during the war at a base hospital from 20 to 40 kilometers back from the front, and has had opportunity to note the effect of the disinfectants applied at the first dressing station, as well as in his own service He insists on draining from the lowest point, this nullifies the action of the Carrel continuous irrigation technic, and he seeks to accomplish the same purpose in another way He lays a pile of scraps of agar on a square of gauze, making a very loose bag of it by drawing up the edges and tying them together This bag of agar is then fitted into the wound, the corners of the gauze projecting above and spreading out over the surface A drain tube projects below at the lowest point of the wound The agar is then profusely watered with Dakin's solution or other disinfectant It swells and thus spreads the wound and opens up the recesses while bringing and holding the disinfectant against the tissues The disinfectant is poured in anew every two or three hours or can be supplied by the drip method with a Carrel tube, one end set deep in the agar, the other projecting above the wound He says in conclusion that the early disinfection possible with this simple means, which does not interfere with the transportation of the wounded, realizes results beyond the fondest dreams, the wounds healing infinitely earlier and more completely

55 **Protracted Meningitis**—Ramond has found that methylene blue injected by lumbar puncture scarcely ever finds its way, or only with difficulty, into the ventricles, and vice versa He has tested this on the cadaver and on the living subject Hence antimeningococcus serum injected by lumbar puncture cannot be expected to reach the ventricles in amounts sufficient to destroy the meningococci there The infectious process continues to develop in the ventricle and keeps up the meningitis indefinitely, as in a case described After a period of improvement under serotherapy, the symptoms returned, with progressive stupor, generalized rigidity, and sphincter and eschar troubles, suggesting involvement of the ependyma After the forty-fifth day of prolonged meningitis, Ramond trephined and evacuated about 30 c c of an opalescent fluid from each ventricle, and injected 10 c c of antimeningococcus serum There was marked improvement at once and the patient's mind was clear, he slept well and asked for food But the torpor returned the next day, with death in coma the day after Necropsy showed that the pus originated in the fourth ventricle but sank down by gravity, bathing the under surface of the cerebellum and spreading downward back of the spinal cord

56 **Treatment of Torpid Wounds**—Masmonteil's analysis of the phenomena of healing shows that the terminal fibers of the sympathetic nerve which respond to measures to induce revulsion are the same terminals which are responsible for the healing of wounds If this is not occurring properly, measures to induce revulsion may start the wound to heal normally The organism represents a neutral or slightly alkaline medium, of a given temperature and osmotic tension, in which are bathed the terminals of the sympathetic nervous system Every substance which differs in temperature, in osmotic tension and in chemical composition from the conditions in this medium has an exciting action on the nerve terminals This action, however, occurs only in a narrow range, varying with each substance, and also with the individual susceptibility at the moment, above this it injures the protoplasm The sympathetic nerve fibers accompanying the vessels have been incriminated recently as a factor in causalgia and this distressing form of neuralgia is being cured now by severing the hyperexcitable sympathetic vascular plexus involved Masmonteil is convinced that a similar nerve trouble is responsible for the nonhealing of torpid ulcers, only here the difficulty is that the nerve is hypo-excitable, practically paralyzed, and no vascular reactions occur The same patient may present causalgia in one region with a torpid ulcer at another Sympathetic paresis is thus the secret why certain ulcers fail to heal and why the measures liable to be effectual for them are all in the line of nerve stimulants This conception, he declares, explains likewise the mechanism of the phenomena of inflammation, and links together the various measures against atonic conditions, while explaining the mechanism of trophic ulceration—all falling under the workings of one law of general biology

58 **Epidemic Meningitis**—Ramond relates that in about a third of his cases of epidemic meningitis in soldiers, the disease runs the classic course and recovery seems to be impending, but then symptoms develop indicating involvement of the ventricles or ependyma He has trephined the ventricles in twelve cases of this, in nine from the top, in two from the side and once from the back In three cases complete recovery followed and marked improvement was evident in every case, but the intervention came too late in the other cases and all died in from three to fifteen days except one patient, who survived for three months He uses silver trocars, 7 cm long and from 1 to 1 5 mm in diameter, with two side holes at the tip The trocar is introduced for 4 5 or 5 cm As the guide is withdrawn, fluid usually spurts It may have to be cautiously aspirated out or rinsed out by injecting 2 c c of the antiserum Then the antiserum is introduced in an amount corresponding to two-thirds of the fluid evacuated The patients bore the operation well, and he declares that it is "absolutely inoffensive" He applied this trephino-puncture, as he calls it, only as a last resort, but his experience has encouraged him in future to apply it earlier

61 **Sodium Citrate in Physiologic Solution**—Chaton was much impressed by the death of two women, one a few hours after childbirth, the other after hysterectomy for fibromas, both of which had been accompanied by severe hemorrhage The symptoms indicated that death was due to cardiac thrombosis, the blood having evidently acquired abnormal coagulating properties as a defensive reaction to the repeated hemorrhages Neither the loss of blood nor surgical shock could be directly incriminated for the fatality In connection therewith he has been experimenting with sodium citrate, instead of sodium chlorid, in the physiologic salt solution His results have been encouraging and experiments on the dog have confirmed the harmlessness of intravenous injection of a solution of sodium citrate after much loss of blood It seems promising, especially after childbirth, when the blood naturally shows increased coagulating power In these cases it might be well to associate it with a stimulant for the heart Injected in small doses, and early enough, it might check coagulation in the veins and thus ward off or arrest phlebitis

Policlinico, Rome

July 9, XXIII, No 28, pp 865 892

62 Early Diagnosis of Pulmonary Tuberculosis C Martelli —p 865

June Medical Section No 6, pp 161 192

63 *Serologic Diagnosis of Tuberculosis (Ricerche serologiche nella tubercolosi) L Datta —p 161
64 Culture Mediums to Substitute Petruschky's Whey Medium (Substrati di cultura artificiali in sostituzione del siero di latte di Petruschky) M Pergola —p 177

63 **Serologic Diagnosis of Tuberculosis**—Datta devotes six pages to parallel tabulation of the findings in sixty tuberculous patients with the skin tuberculin reaction, agglutination and precipitin tests, and fixation of complement by two different technics Most of the patients had pulmonary tuberculosis, but a few had tuberculous meningitis, Addison's disease or polyserositis The tuberculin reaction was the most constant of all the tests in pulmonary tuberculosis except in the most advanced cases The fixation of complement reaction came next in order of frequency, and was most constant in the graver cases This renders it useful in prognosis The agglutinin and precipitin tests never gave

independent positive findings but trailed the others, giving positive findings in the milder cases, the precipitin reaction occurring a little more frequently than the other In diagnosis, therefore, and in prognosis, especially in pulmonary tuberculosis, he advises applying both the skin tuberculin test and the complement fixation test, with possibly the precipitin reaction as a subsidiary test

Riforma Medica, Naples

XXXII No 19 pp 501 528

65 Soldier's Heart (Le nevrosi di cuore e la guerra) A Ceconi —p 501
66 Diplococcus Pleuropulmonary Congestion U Baccarani —p 505

No 20 pp 529-556

61 Chronic Myeloid Leukemia with Hematomyelia in Woman of 34 R Rummo —p 529 Concluded in No 21

No 21 pp 557 584

68 Tuberculous Process in Tonsil with Secondary Pleurisy and Apical Lesion on Same Side S Pusateri —p 562

Semana Medica, Buenos Aires

XXIII, No 20 pp 547 574

69 *Leprosy in Argentina (La lepra Su origen difusion y profilaxis Lo que se debe hacer en la Argentina) J Penna —p 547
70 Cesarean Section in Lower Segment of the Uterus (Cesarea segmentaria) N P Costa —p 552
71 *Postoperative Accidents E P Siri and G Borra —p 568

No 21 pp 575 596

72 Organic Dementia with Pseudobulbar Syndrome F F Morixe —p 575
73 Sexual Perversion (Anomalias y aberraciones del instinto genesico) A. Stucchi —p 581
74 The Chemical Properties and Biologic Role of Filotion the Albuminoid Substance which Produces Sulphuretted Hydrogen in Presence of Sulphur J de R Pailhade —p 591

69 **Leprosy**—Penna is chief of the National Public Health Service as well as professor of epidemiology at the University of Buenos Aires, and he here discusses the prevalence of leprosy in Argentina and what should be done to combat it He relates that there are no ordinances preventing lepers from traveling from place to place and thus spreading infection and no institutions to isolate them even if legislation should be taken to enforce segregation Cases are known in greater or less numbers in every province, the absence of any attempt at isolation having resulted in the spread of this disease in recent years into regions previously exempt from it Recent proposed legislation to combat leprosy and other avoidable diseases was voted down for reasons of economy, the "million pesos' this would require being regarded as extravagance No one seemed to take into account the sixteen million pesos spent by the country in caring for the sick, to say nothing of the thirty thousand victims that might have been saved There is no public institution where lepers can find treatment and shelter When will legislators realize, he exclaims, that the best intentioned decrees and ordinances and laws are not enough to prevent diseases nor to treat them, all their provisions, the most altruistic and the most scientific, are of no use whatever when no funds are forthcoming to enforce them The Argentine government summoned a conference of medical experts in 1906 to discuss the question of leprosy Resolutions were adopted and presented to parliament, and other appeals have been made since by Penna and others, but no attention has been paid to them by the legislators The leper can board a train or mingle with the populace otherwise and no one has a right to interfere Even private benevolence has done nothing for lepers with the exception of a small endowment at one hospital which supplies tobacco and other minor luxuries to the lepers that come for treatment to that hospital A colony was planned on an island by private initiative ten years ago Penna would like to have leper asylums organized near the main foci of the disease, not at remote points expensive to reach

71 **Postoperative Convulsions**—In the case reported a scrotal hernia required resection of omentum in a man of 29 The wound was closed except for a gauze drain and the patient seemed to be doing well when he developed sudden contractions of the whole body They were so abrupt and so violent that the body sprang up from the bed at brief intervals These convulsions gradually grew less violent, but the man died the third day from secondary hemorrhage brought on by the violent movements

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 8 II No 2 pp 97 192

75 Experience and Deductions in the Practice of Medicine (Ervaring en bespiegeling in de geneeskunde) A Sikkel —p 98
76 *Cyclitic Myopia Optic Myopia and Infantile Glaucoma (3 bijzondere vormen van bijziendheid) W Koster —p 113
77 Endonasal Treatment of Frontal Sinusitis (Endonasale behandeling bij aandoeningen der voorhoofdsholten) A De Kleijn —p 124
78 Present Status of Question of Etiology of Pregnancy Toxicoses (Over de aetiologie der zwangerschaps toxicosen) B Slingenberg —p 125

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79 *Thyroid Insufficiency a Factor in Epilepsy and Migraine (Het klinisch ziektebeeld der genuine epilepsie psychische epilepsie poriomanie migraine) G C Bolten —p 200
80 The Tonsils and Respiration (De weg van den inademingsstroom door den pharynx in verband met de functie der tonsillen) P J Mink —p 225
81 Importance of Occult Blood in Excluding Simple Neurosis (De waarde van het onderzoek der ontlasting op blood) W Hoogslag —p 236

76 **Unusual Forms of Myopia**—Koster has noticed that the forms of myopia which cannot be classed as school myopia or progressive myopia can be grouped under three headings as a rule the myopia from cyclitis, that left by spontaneously subsiding glaucoma in childhood, and the congenital or genuinely optic myopia He gives the details of a number of typical cases in each group, emphasizing the differentiating points and expatiating on the importance of a correct diagnosis both for treatment and to ward off further harm The prognosis of the cyclitic type is bad, whatever technic may be applied It begins in youth, in otherwise healthy children Heredity is unmistakable also in these cases, generally a congenital predisposition, and the affection is moderately progressive The chronic cyclitis commencing so early interferes with the nutrition and growth of the eye The eyeballs are large, the conjunctiva injected and rather dry, with a tendency to lie in folds, the pupil is not wide, the vitreous humor early becomes troubled The fundus shows a small crescent on the temporal side of the disk but there are no special signs of choroiditic changes Complications are liable and manifold In two cases cited, in men of 50 and 35, the affection had progressed to detachment of the retina Mercurial treatment was then instituted and vision was retained in the other eye enough for the men to get around in the street

An inherited predisposition was evident in the cases of stationary buphthalmos, as a consequence of glaucoma in childhood which he reports In one the mother was hypermetropic and the canal of Schlemm in the child must have been defectively developed, entailing the buphthalmos and the myopia An infant in the family moves its right upper lid as it sucks In another family two sisters had had glaucoma or stationary buphthalmos while two other sisters and the father had the congenital or optic form of myopia The myopia in the glaucoma case had evidently been aggravated by too strongly negative glasses for near work In a third family a boy of 13 has still manifestly progressing buphthalmos while it is stationary in a girl of 8 In the congenital or optic myopia type the eye is as sound as an emmetropic eye but optically presents myopia from birth It is important to differentiate this rare type, as no treatment is needed and the prognosis is better than with other forms of myopia of equal degree He cites cases in which the myopia increased somewhat at puberty and decreased in others, and discusses the mechanism involved

79 **Thyroid Treatment of Epilepsy**—Bolten s long article is an argument in favor of the assumption that in many cases the primal source of epilepsy and migraine is in the perverted or insufficient functioning of the thyroid or parathyroids This allows abnormal processes in the digestive tract, with chronic autointoxication as the result Certain cases of migraine, like the cases of genuine epilepsy, are the consequence of hypothyroidism and hypoparathyroidism, the

migraine in these cases representing merely a rudimentary form of a genuine epileptic seizure These thyrogenous cases are benefited by systematic thyroid treatment He gives it in the form of fresh juice pressed out of the organs in question, injecting the pressed juice into the rectum The attack of migraine, like the epileptic seizure, is a phenomenon from toxic action, a reaction on the part of the organism to cast off the toxins that have accumulated in the cerebral cortex

He emphasizes that the clinical picture of epilepsy is not so uniform as generally assumed, although the manifestations in the individual patient usually show great uniformity Besides the common type, petit mal, typical seizures and change of character, the psychic type includes the maniacal, the paranoid and the melancholia cases on one hand, and epileptic delirium and somnambulistic conditions on the other This psychic epilepsy occurs almost exclusively with the severe forms of cerebral epilepsy, traceable to some old meningo-encephalitis or something of the kind In all his experience he has encountered only one case in which two attacks of psychic epileptic phenomena developed in genuine epilepsy, each lasting three or four days and each terminating with profuse sweating The patient was a man of 32 Bolten protests against calling these psychic manifestations "epileptic equivalents" The epileptic seizure, and likewise the attack of migraine, is a phenomenon indicating that the toxins acting on the cortex have reached their bearable maximum, and the organism reacts with the seizure Ulrich found an inherited predisposition in 200 out of 500 migraine patients and it was probable in 80 more, thus in over 50 per cent In 12 per cent the patients had both migraine and epilepsy, and 38 other migraine patients had epilepsy in the family

Bolten's thyroid treatment, based on these and other arguments which he presents, have given good results in 6 cases of cerebral epilepsy with alternating attacks of migraine, also in 2 cases of genuine epilepsy with attacks of migraine, and in 2 of uncomplicated thyrogenous migraine One watchmaker of 32 who had had migraine since early manhood and epileptic attacks for six years, gradually increasing in frequency until they occurred once or twice a month, improved under eight months of thyroid treatment until he had practically no further symptoms and his brain was much clearer Another man of 45 has been under Bolten's charge for five years and has had no further attacks of either migraine or epilepsy since his course of thyroid treatment, when previously he had come to have two or three seizures a night His migraine had developed about the age of 20 and genuine epileptic seizures at 38

Hospitalstidende, Copenhagen

July 12, LIX, No 28, pp 673 696

82 *Experiences in Military Hospital in France Last Winter (Krigskirurgiske Indtryk fra Frankrig) P Guildal —p 673 Commenced in No 27
83 Pedunculated Sarcoma on Small Intestine (Stilket Sarkom fra Tyndtarmens Serosaside som Aarsag til Ileus) P Møller —p 679

82 **With the Danish Medical Mission in France**—Guildal reviews the impressions of his five months of service in an ambulance in France and from his visits to other hospitals He comments on the extensive sifting of the wounded, those wounded in the head, for instance, being sent to a hospital near the front caring exclusively for this class of wounds Another thing that impressed him particularly was the celerity and skill with which at the Compiegne Hospital the 1,700 wounded were moved down into bomb-proof cellars when bombarding began Infection occurs in a more malignant form, even with minor wounds, than we see in peace, even with the largest accidental lesions He says of Carrel's method of aborting infection that it may clear up the wound more promptly than other technics, but that it is a long and tedious task to apply it, and it can be done only by well trained attendants The results have not been so good in other hands Guildal is inclined to ascribe the benefit from it to the preliminary thorough mechanical opening up and cleaning out of the wound, under general anesthesia, usually with ethyl chlorid Gas gangrene is not seen any more when this thorough *debridement* of the wounds is a routine measure, unless the interval since the injury has been too long, as in one case he saw where the man with a wound in the knee had lain between the trenches for four and a half days

The hospital in charge of Gaudie made a peculiar impression, as he prefers methylene blue for his disinfectant and the patients and physicians, the beds and the whole hospital were stained blue He treats a wound like a malignant growth, excising in every direction into sound tissue, and flooding with an aqueous solution of the blue, with an alcoholic solution for the skin The method certainly gives good results

The trend on the whole as the war progresses is more and more to operative intervention and all efforts are devoted to have it done early One flying ambulance for laparotomy work consists of eleven automobiles and fifteen surgeons, permitting continuous work Underground bomb-proof laparotomy rooms, less than 900 meters from the enemy's trenches, are not uncommon

Hygiea, Stockholm

LXXVIII, No 12, pp 801 880

84 Morgagni as Pioneer in Pathologic Anatomy (Den patologisk anatomiska vetenskapen och Giovanni Baptista Morgagni) G Hedren —p 801
85 *Treatment of Tuberculosis on Partial Antigen Principle (Om behandling av tuberkulos med partialantigen enligt Deycke Much) S Berg —p 811
86 Necropsy Confirmed Disputed Diagnosis of Paralytic Dementia in Case with Litigation (Ett omstritt interneringsfall Epilog) O Kinberg —p 858

85 **Treatment of Tuberculosis on the Partial Antigen Principle**—The details of fourteen cases are given, as also the quantitative intradermal reaction in eleven healthy persons No positive influence on the course of the disease from the partial antigen treatment could be detected

Ugeskrift for Læger, Copenhagen

June 29 LXXVIII, No 26, pp 1079 1118

87 Pantopon (Om Sahli's Pantopon) H Jacobæus

July 6, No 27, pp 1119 1150

88 Specificity of the Precipitin Reaction in Diagnosis of Syphilis (Undersøgelse over Fældningsreaktioner) H I Bing and P Schmitz —p 1119
89 *Laryngostomy L Mahler —p 1125
90 Extensive Eczema Marginatum after Application of Compresses M B Pedersen —p 1131
91 *Cardiospasm, Four Cases Kramer Petersen —p 1133

89 **Laryngostomy**—Mahler applied laryngostomy for chronic stenosis and also in a case of recurring papillomas, and expatiates on the comparative simplicity and ease of the operation and the fine results His first patient was a girl of 17 who had been tracheotomized for croup at the age of 4 and had been compelled to wear a cannula since The larynx had grown up below the vocal cords and she had no voice The larynx was slit on the median line and the fibrous tissue obstructing it was all excised The wound was drained and after healing of the old fistulas and a Gluck plastic operation, clinically normal conditions were restored, the girl being able to breathe and speak normally by the end of a year Various other measures had been tried before to relieve her of the cannula, but all had failed In the second case a girl of 8 had already had five operations for recurring polyps in the throat, and had been wearing a tracheotomy cannula for three years The larynx was thoroughly curetted through a median incision, and there have been no further signs of papillomatous excrescences during the months since The incision could be closed in twenty-five days after the laryngostomy Fontaine has a record of twenty-three laryngostomies with one death, for which the operation was not responsible

91 **Cardiospasm**—Petersen reports four cases of cardiospasm with secondary dilatation of the esophagus, in all of which conditions were restored to clinically normal by systematic dilatation with an inflatable bag The patients were all adults and the cure was complete and permanent

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CONGENITAL DEFORMATION AND DEFUNCTIONALIZATION OF THE CAUDAD ILEUM AND COLON*

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The descending colon of the embryo, on account of the width of its mesentery is at first freely movable and lies well over to the left side of the abdominal cavity In consequence the left layer of its mesentery lies in contact with the parietal layer of the peritoneum Subsequently fusion of these two peritoneal layers takes place The fusion begins near the median line that is, near the root of the mesentery, and extends outward The fused layers eventually become converted into loose connective tissue Thus, this portion of the colon loses its mesentery and becomes fixed to the abdominal wall

This fusion extends usually in the caudad direction as far as the medial border of the left psoas muscle and takes place to a variable extent in the iliac fossa Owing to irregularities in the fusion of the mesocolon descendens to the mural peritoneum, transverse folds or septa are developed and small paracolonic fossae are formed At the lowest level of normal fusion, that is at the proximal or cephalad end of the sigmoid a distinct band, marking the edge or lower border of the fusion, tethers the sigmoid to the abdominal wall This bandlike margin is the linea terminalis, which stands out conspicuously when the sigmoid is drawn ventrally giving added depth to the recessus intersigmoideus As the sigmoid mesocolon does not as a rule fuse with the parietal peritoneum, but remains freely movable, it is readily seen that acute angulation may occur at this level as it does at other fixed points of flexure or angulation, as at the hepatic flexure or splenic angle If normal embryologic fusion of the two peritoneal surfaces in this region is excessive that is, if the fusion extends so far laterally as to obliterate the space between the mural peritoneum and the tunica serosa of the distal descending colon and proximal sigmoid, fixing the intestine itself to the abdominal wall, such excessive fusion is to be looked on as a predisposing factor in stagnation in this segment

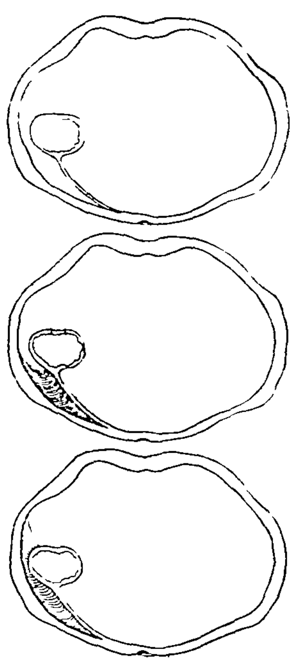
Fig 1—Diagram showing cross section of colon of embryo above with long mesentery before fusion middle normal fusion of mesentery of colon to parietal peritoneum below excessive fusion extending over ventral surface of colon

A similar fusion of the outer lamina of what is at first a free and loose mesentery of the ascending colon with the contiguous mural peritoneum also takes place on the right side Excess of this fusion gives rise to the condition noted but not explained by Byron Robinson and observed with great frequency since, the condition in which a longitudinal plica of peritoneum seems to have been pulled up from the bottom of the paracolonic trough and fused like a patch on the lateral surface of the colon sometimes as high as the tenia libera or median longitudinal band Inequalities of normal fusion on the right side give rise to transverse bands or folds dividing the paracolonic space into fossae as on the left side Such transverse folds are so constant as to be considered anatomic The peritoneum of the abnormal or excessive fusion folds is usually whitish, and being supported by loose connective tissue, it is usually rather firm in texture These structures bear very little resemblance to the hyperemic or vascular diaphanous membrane described by Jackson Such extensive fusion not rarely fetters or angulates the lower extremity of the descending colon and the proximal end of the sigmoid If during abdominal operations one has in mind the normal embryologic fusion here mentioned, it will not be difficult to understand the frequent presence of adhesion bands fixing the sigmoid to the parietal serosa in such an excessive degree as to embarrass its function

It should be noted that the sigmoid colon is still relatively long and freely movable at birth

Frommer, Curschmann and Concetti recognize in the elongated sagging, redundant sigmoid a persistence of the fetal and infantile condition in which the mesentery is broad and free and this portion of the large intestine relatively long The letter M sigmoid often observed in the adult is a common finding in the fetus

There is another important embryologic factor in the etiology of sigmoidal stagnation, this being the presence in the fetal and postnatal abdomen of a fold of peritoneum extending from the mesentery of the proximal sigmoid downward and outward in the direction of the internal abdominal ring This persisting

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* Read before the Section on Obstetrics Gynecology and Abdominal Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

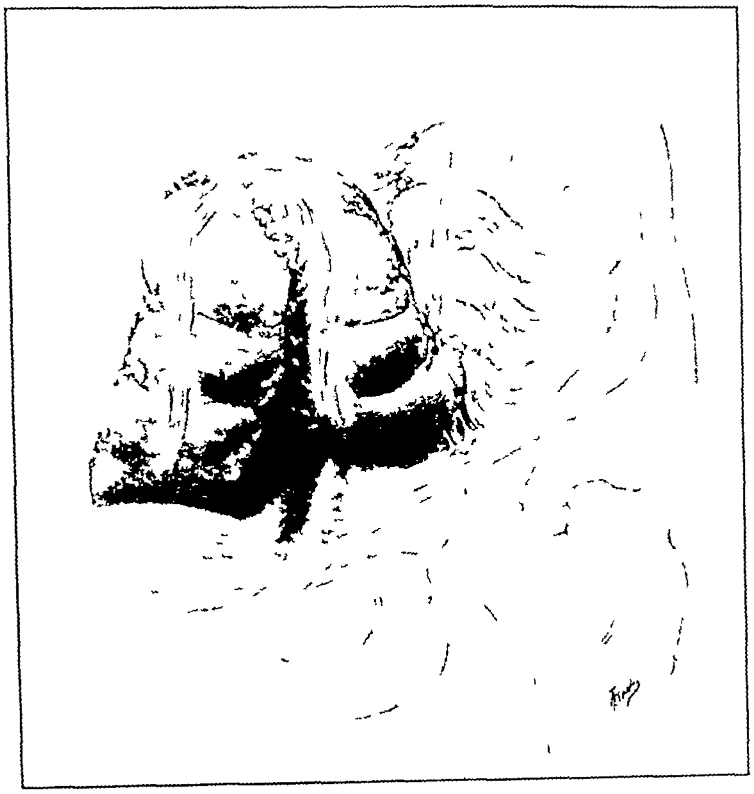

Fig 2.—Postnatal condition probably the result of excessive fusion of colon mesentery to parietal peritoneum as shown in Figure 1

fold takes the same course as the plica vascularis of the descending testis or ovary. There is perhaps sufficient reason to believe that the postnatal fold on the right side of the abdomen extending from the mesentery of the terminal ileum to the genital gland, which has been called the ileopelvic band by Lane and which in the female may by traction on the appendix be drawn up as the appendiculo-ovarian ligament, are but remnants of the very conspicuous fetal fold of peritoneum which is drawn out by traction of the inguinal ligament on the descending genital gland, the inguinal ligament becoming in the male the gubernaculum testis and in the female the round ligament.

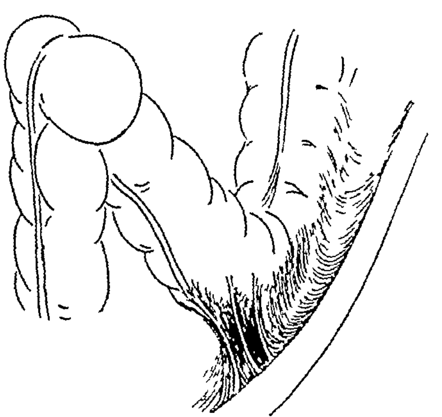

Fig 3.—Erratic fusion membranes in layer arrangement binding proximal sigmoid

Douglas Reid described a fold which in the fetus takes the same general course. He called it the genitomesenteric fold. Thus, it will be seen that on the right side a distinct tendency for the development of folds extending from the ileocecal region down to the genital gland has been rather clearly shown. Excessive fusion in embryo of the mesenteries of the ileum and cecum with the folds just mentioned, and downward traction of the descending genital gland, may be suspected fairly of producing displacements and deformities of the terminal ileum and cecum. On the left side of the abdomen as well, the descent of the testis and ovary draws out a very distant fold, the course and attachments of which are similar to those of the fold on the right side, except that on the left it is the mesentery of the sigmoid which is concerned instead of the mesentery of the terminal ileum and cecum. Conditions with respect to this fold do not vary greatly in the two sexes. The inguinal ligament in the female extends from the primitive position of the ovaries in the lumbar region of the abdominal cavity to the groin, where it passes through the abdominal wall, traversing the inguinal canal to terminate in the labium majus. It should be recalled that as the ovary and testicle, developing in their primitive position behind the peritoneum, increase in size, they project toward the peritoneal cavity. The peritoneum covering them forms a mesentery which anchors them to the posterior wall of the abdomen. By the time the genital glands reach the pelvis of the embryo, the mesorchium or mesovarium continues downward to the internal abdominal ring as the inguinal ligament. The peritoneal fold thus developed may by very slight traction on the ovary or testis be exhibited in embryo as a ridge as high as 6 cm. or more. In operation for inguinal hernia in the male adult, downward traction on the neck of the peritoneal sac often brings into prominence the remnant of this fetal fold, traversing from the inguinal canal to the mesentery of the cecum on the right and from the internal abdominal ring to the mesentery of the proximal sigmoid on the left. The presence of this fold may help to explain the frequency with which the cecum and sigmoid descend into the sacs of inguinal hernia.

As fusions of mesenteries to the fold of the descending gland produce deformities in the ileocecal region on the right, so similar fusions and contractures may fix or angulate the proximal sigmoid on the left. Many clinicians have noted the tendency of deforming bands and folds to dispose themselves between the proximal sigmoid and the left internal abdominal ring.

No doubt the principal factor in the arrest of intestinal contents in the sigmoid is an anatomic one. In many individuals, particularly in the new-born, the sigmoid begins with a sharp turn upward or obliquely to the right and upward from the linea terminalis. Frequently there are other sharp angulations, as in the letter M sigmoid, rather common in the fetus and adult. Occasionally a sharp curve is seen at the third sacral vertebra where the sigmoid goes over into the rectum.

It has been known for many years that the feces remain normally and physiologically in the sigmoid and

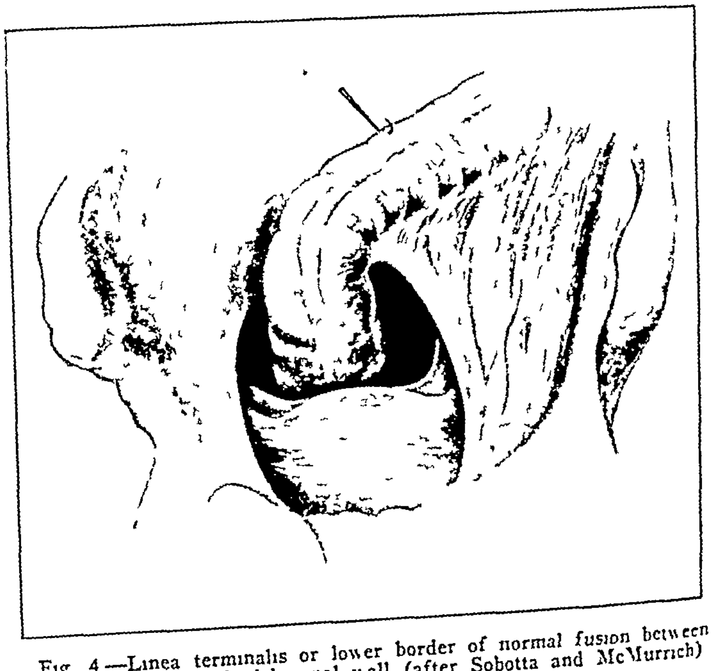

Fig 4.—Linea terminalis or lower border of normal fusion between descending colon and abdominal wall (after Sobotta and McMurrich)

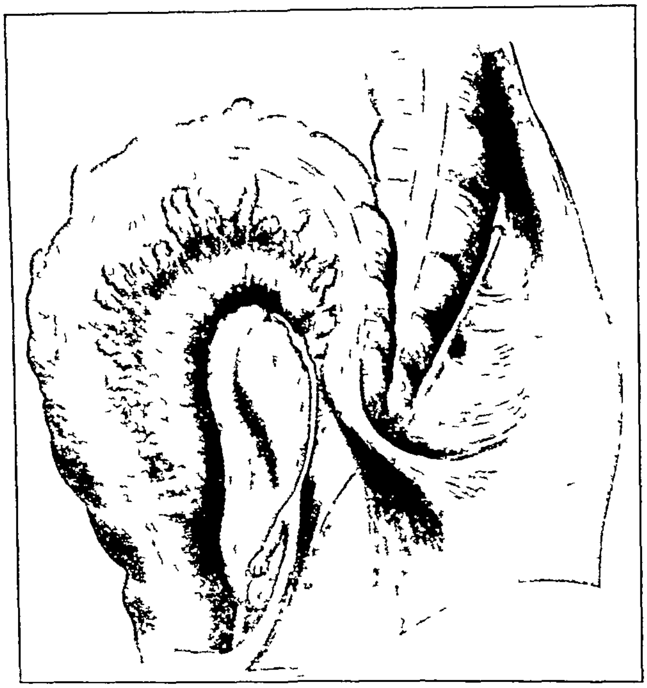

Fig 5 —Linea terminalis (or lower border of fusion on left side) fixing proximal sigmoid (after Piersol)

do not descend into the rectum between one defecation and the next Stasis of excrement in the sigmoid beyond physiologic limits leads to colitis in this part of the large intestine, as elsewhere Ulceration may appear as the result of long retention of colon contents Inflammation of the mucous membrane is a natural result of stagnation of bowel contents The serosa reacts to the irritation of high-grade localized distention, a condition which may be called colitis infiltrativa chronica is established, and fixation adhesions of the peritoneum of the sigmoid are of almost constant consequence

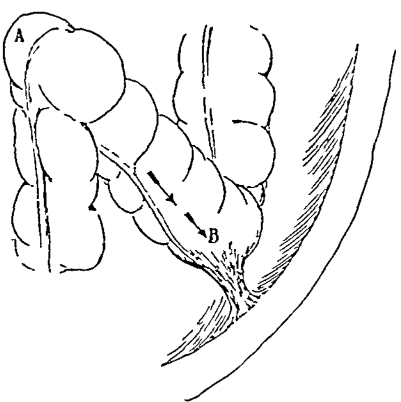

Fig 6 —Traction of fold or adhesion of sigmoid at *B* causing sharp angulation at *A*

Thus, embryologic, anatomic, physiologic and pathologic factors which are inherent in the sigmoid itself lead to sigmoidal constipation Deforming adhesions due to a pathologic condition extrinsic to the bowel as of uterine adnexa, may also of course defunctionalize the sigmoid

Those abnormal attachments of the sigmoid which are due to excesses or irregularities of embryologic fusion are usually not so firm but that they can be broken up by gauze dissection, by wiping, so to speak, with gauze the sigmoid away from the parietal peritoneum Fortunately, the almost complete absence of blood vessels in the fusion membranes makes sharp division of these structures simple and safe, thus, the linea terminalis may be put on the stretch and divided upward with scissors or knife without bleeding Not infrequently such irregularities of fusion take the form of manifold layerlike adhesions in the neighborhood of the linea terminalis, and often one layer or septum of adhesions after another can be wiped away However, the firmer bands which follow the course of the fetal fold developed by the descent of the genital gland usually require the knife or scissors-spreading dissection for their division On liberation of the sigmoid from the restraint of such excesses or irregularities of fetal fusion, the return of more nearly normal function is evidenced frequently by the passing of flatus, and if the deformities of the sigmoid thus induced are not associated with deforming and obstructing intestinal lesions elsewhere, the prospect of relief of stasis with its consequent ills may become good as the result of a very simple measure

As is well known, another common site of deforming defunctionalizing adhesions is about the cecum and terminal ileum Up to the fourth month of embryonic life, this, like other parts of the large intestine, hangs by an ample mesocolon Subsequently, however, this mobility becomes lost, owing to the fusion between the outer lamina of the mesocolon and the neighboring mural peritoneum It should be noted that this fusion takes place in varying degree, and thus we can account for many irregularities in the attachments of the cecum and ascending colon After normal fusion, the mural serosa becomes continuous with the tunica serosa of the ascending colon The fused layers behind the colon disappear as such, and the posterior wall of the latter no longer has a peritoneal covering

Instances of retrocecal and retroperitoneal appendix may be explained rationally by assuming that before fusion occurs the appendix becomes caught between the coalescing peritoneal surfaces of the cecal mesentery and the abdominal wall In cecal descent and torsion the appendix might readily be arrested at an abnormally high position and between the serous surfaces mentioned Thus a true retroperitoneal position of the appendix could be established This truly retroperitoneal position of the appendix is obviously different from that condition in which, after fusion has occurred, the appendix is buried under a membrane developed by adhesions of small folds about the ileocecal region to the mural serosa, which adhesions are drawn out as membranes over the caput coli and appendix during normal cecal torsion

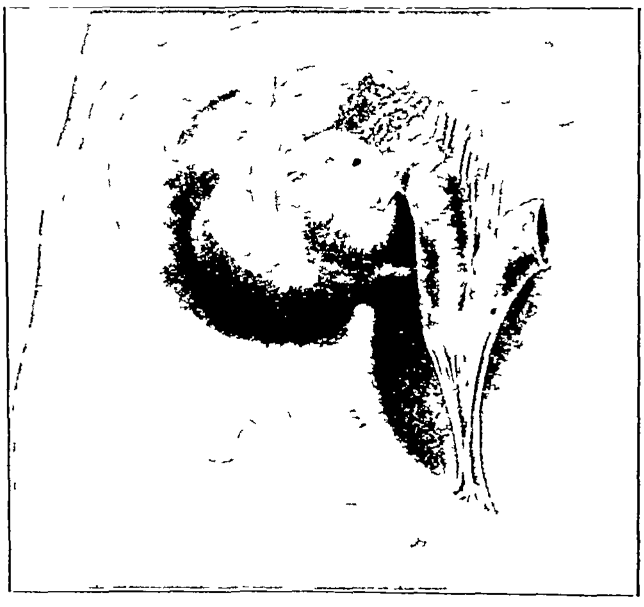

Fig 7 —Fusion of terminal ileum and peritoneal fold of descending testis resulting in postnatal angulation of terminal ileum

The normal fusion of mesentery to *mural serosa* as a rule does not extend down to include the cecum, but it may do so At the lower termination of the fusion there is a sharp border of foldlike margin called the plica caecalis or subcecal fold, to the medial side of which under the free unattached caput coli and lower cecum is the fossa cecalis Excesses and abnormalities of this process of peritoneal fusion may, it is clear, lead to deformation of the cecum and ascending colon I have noted in an adult an instance in which excessive fusion had occurred between the mural peritoneum and the tunica serosa of the ascending colon continuing mediad in places as far as the tenia libera or longitudinal muscle band Not rarely the fusion extends so far downward that the plica caecalis or lower margin of the fusion is firmly attached to the caput coli, interfering with its movements and functions

On the right side we must add to the abnormalities mentioned those folds and membranes which are developed by adhesions between the terminal ileum or cecum and the parietal peritoneum before normal cecal torsion has taken place Thus, the plica ileocaecalis, a fold of varying size, extending under normal conditions from the mesenteriolum of the vermiform process to a line on the terminal ileum opposite its mesentery, may become adherent to the mural serosa before cecal torsion takes place, and later, as the terminal ileum rolls mediad, be drawn out into a membrane covering the caput coli and appendix In a similar *manner sheets of peritoneum* may be drawn over the cecum and ascending colon as a result of adhesion between the two contiguous peritoneal surfaces before cecal torsion occurs Such anomalous peritoneums persisting from fetal life often interfere with the drainage of the cecum, the terminal ileum and the vermiform appendix It is usually not a difficult matter in the adult to divide such fusion adhesions or separate *them by* gauze or scissors-spreading dissection

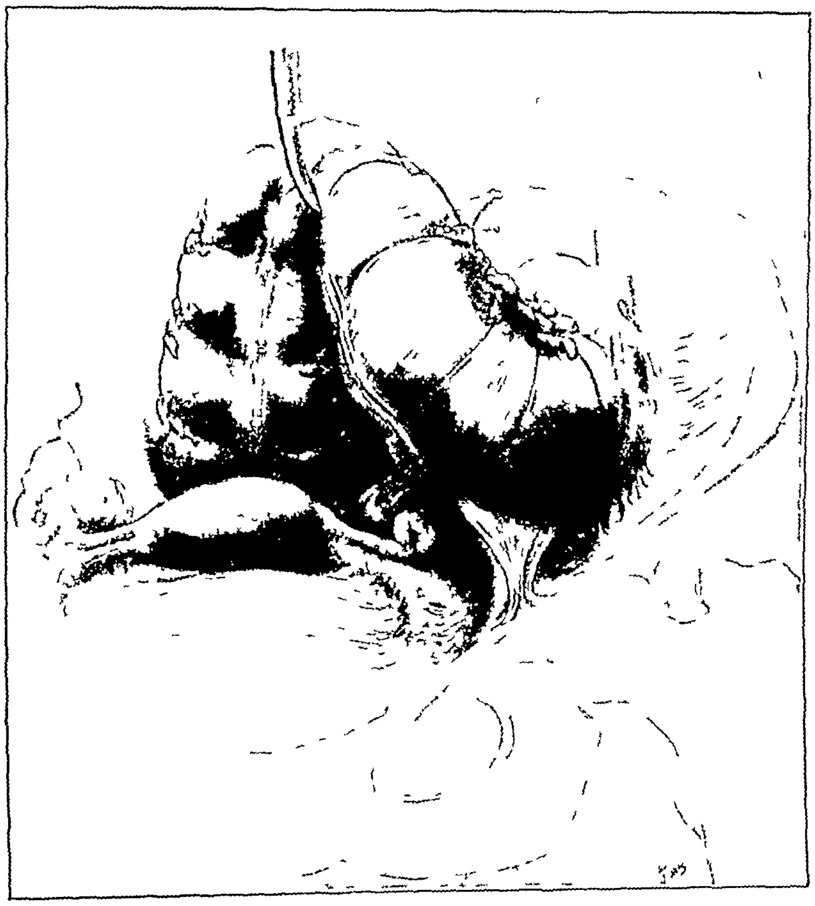

Fig 8—Fusion of mesentery of proximal sigmoid and plica vascularis or fold of descending genital gland resulting in postnatal band tethering sigmoid to internal abdominal ring

At this point it is desirable to call attention to the difference in origin, in histologic construction and clinical effects between these abnormalities, the result of irregularities or accidents of fetal fusion, and the vascular loosely attached weblike, diaphanous membrane which covers the cecum in the condition of membranous pericolitis Fetal fusion bands and membranes show as a rule no signs of inflammation, are apparently almost bloodless, and have the appearance of thin connective tissue The diaphanous membrane of pericolitis or perityphlitis is characterized by abundant, *somewhat parallel* coursing vessels which, it should be noted, correspond in their course, division and distribution with the branches of the ileocolic artery This vascular veil of apparently detached peritoneum cannot often, if ever, be completely removed without leaving a raw bleeding surface This is obviously an affair of prenatal or postnatal hyperemia, congestion and inflammation, a reaction of the peritoneum to irritation often beginning in an inflamed mucous membrane of the appendix or cecum

Summers observed such a condition following trauma to the abdomen It is rare that a chronic appendicitis is *not associated with this pericolitis membranosa vasculosa* The vascular web of membranous pericolitis may hamper peristalsis and occasionally may deform or dislocate the appendix vermiformis and interfere with its drainage, but by virtue of its loose disposition over the peritoneal surfaces, it being the hyperemic tunica serosa itself, it is not so often found as a deforming factor as is the fold or band resulting from accidents of fetal peritoneal fusion It is worth nothing that whereas the vascular coat of membranous pericolitis cannot be removed, the excesses of fusion can be broken down by gauze and scissors-spreading dissection, and, being almost avascular, they do not readily reform *To attempt to strip off the* vascular membrane of membranous pericolitis results in new adhesion formation, whereas the division of the white fusion bands is often to excellent purpose in releasing the tethered segment of intestine, and does not leave behind bleeding surfaces to unite in fresh adhesions

In a general way the transverse mesocolon fuses with the parietal peritoneum about the beginning of the fifth month of the embryo, as does the mesocolon of the ascending and descending portions That is, the posterior layer of the transverse mesocolon fuses with the parietal peritoneum On the left the transverse mesocolon fuses on both its upper and lower surfaces with the peritoneal covering of the great omentum This fusion of the transverse mesocolon with the peritoneum of the great *omentum* is subject to marked variations

I have observed in the adult two instances in which the fusion of the mesentery of the transverse colon to the peritoneum of the great omentum continued downward on the right as far as the cecum, and on the left as far as the sigmoid In another instance, the tunica serosa of the ascending colon was covered with a double layer of extra peritoneum made by fusion of the anterior and posterior lamina of the great omentum, the double layer being in turn fused with the serosa of the ascending colon In these instances, the tethering of the ascending colon to the transverse colon through the medium of this abnormal fusion was apparently responsible for a double-barrel relationship of the upper ascending colon to the right colon transversum On the left side I have seen a somewhat similar double-barrel relationship secured by an exaggerated ligament of Toldt, that is, an excessive fusion of the great omentum with the proximal end of the descending colon

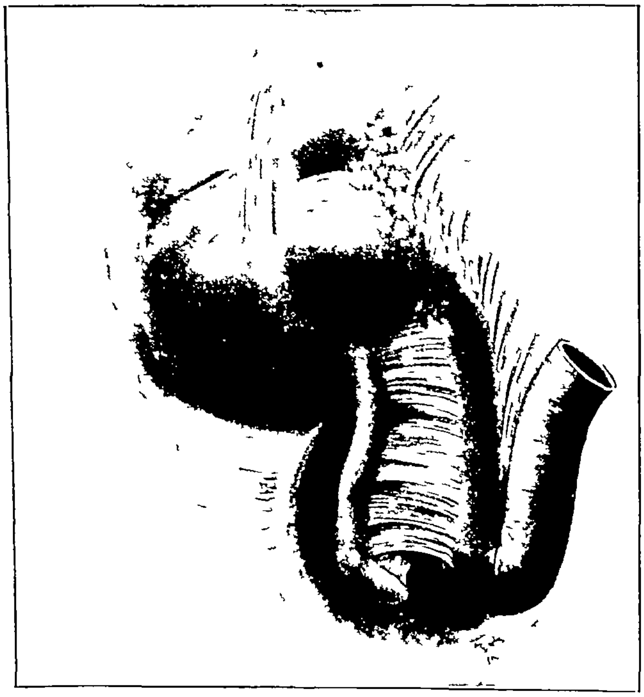

Fig 9—Appendix bound to angulated ileum by abnormal ileocecal fold

331 North Delaware Street

ABSTRACT OF DISCUSSION

Dr A Goldspohn, Chicago Dr Eastman mentioned the extraperitoneal appendix Of course, we know of such a thing occurring back of the cecum in the ordinary location of the latter, but eighteen days ago I operated on a vigorous young man who had an extraperitoneal appendix lying wholly within the small pelvis beyond the cecum Externally he had a painful indurated mass about 2 by 6 cm in size, that could be felt distinctly about 3 cm inward from the right iliac crest parallel with it and extending down to near the outer end of Poupart's ligament There were no signs of any intraperitoneal aggregation or inflammatory swelling beneath it, as from a circumscribed appendicitis The diagnosis was very much confused by the fact that six days previously he had been injured by the end of a wagon pole that struck him above the symphysis pubis a little to the right about the location of the external abdominal ring This did not disable him from continuing with his work About four days after this injury, however, he called a doctor because he had fever and nausea and pain in the region of the present swelling in the abdominal wall The doctor naturally associated the sickness with the trauma which, however probably had nothing to do with it At my first examination it looked very much as if an internal and incomplete inguinal hernia were present with strangulation of omental contents Cutting down into this mass about 3 cm from the border of the crest of the ilium, I found several pus foci in its deeper strata while making my way by blunt dissection extraperitoneally into the small pelvis, along the track of a violent infection, down to the spermatic cord, in which I traced the vas deferens to the vicinity of the bladder The peritoneum was elevated intact throughout and was mostly discolored dark bluish from contact with the infected area After getting to the bottom of this I discovered tied off and removed a mass that looked like gangrenous fatty tissue as large as my thumb, about 3 inches long that could be gathered up and traced to a pedicle running upward I did not at that moment recognize it positively as the appendix because I did not expect to find such a thing there, but by postoperative dissection it was found to be the appendix Desiring to inspect things within the peritoneal cavity I cautiously did so through a small temporary incision in the parietal peritoneum There was some accumulation of clear fluid in it but no redness of serous surfaces Having opened up all the infected connected tissue areas in the pelvis and upward in the loin toward the right kidney, all extraperitoneally, the expanded cavities were thoroughly packed with gauze to drain out a generous incision left mostly open The man continued to have some temperature for several days but afterward convalescence was normal and his recovery is assured with a secondary closure of the wound to prevent a hernia

Dr F Gregory Connell Oshkosh, Wis The causes of the conditions described by Dr Eastman have heretofore been classified as (1) inflammatory and (2) congenital After this I believe we may consider only the congenital In corroboration of Dr Eastman's point relative to the ileopelvic ligament of Lane and a similar ligament on the left side I should like to mention an instance in which I found no evidence of previous inflammation within the abdomen, but an extreme ptosis and redundant sigmoid with an adhesion a fusion of the free omentum to the round ligament on the left side The distinction which Dr Eastman makes between this excessive fusion which may be demonstrated by the 'white line' that Summers has emphasized and these vascular affairs is very important, and should be kept in mind, by so doing further discussion of the subject will be greatly simplified The pericecal and the pericolic membrane must likewise be differentiated in a consideration of this subject. The picture thrown on the screen by Dr Eastman, as typical of Jackson's membrane is a pericecal membrane and not the pericolic membrane as described by Dr Jackson

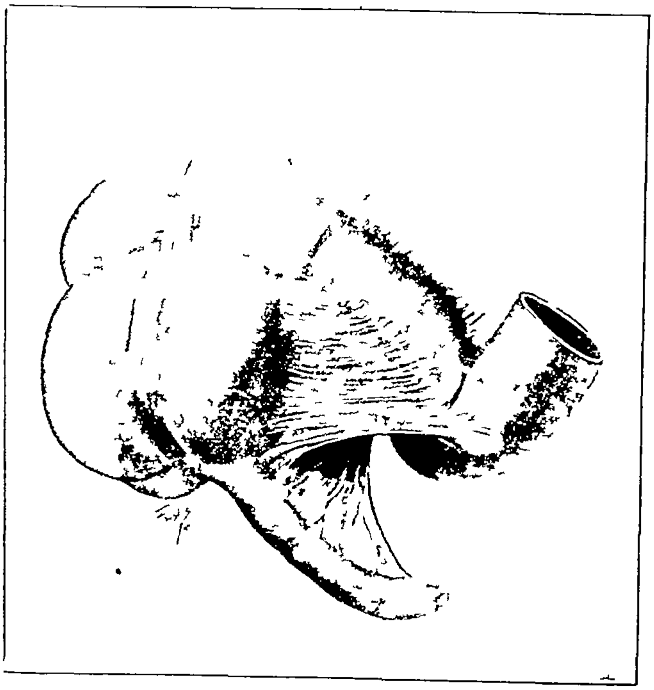

Fig 10—Abnormal fold of Treves angulating cecum

Dr Jerome Morley Lynch, New York Of special interest is the statement that we may have in these congenital deformities no such thing as perfect fusion, that any two layers of the peritoneum may become separated and delaminated and cause deformity I do not believe, however, that raw, healthy peritoneum ever is harmful It is the subsequent inflammation that destroys the endothelium and leaves fibrous connective tissue Unless this change has taken place dissection is unnecessary

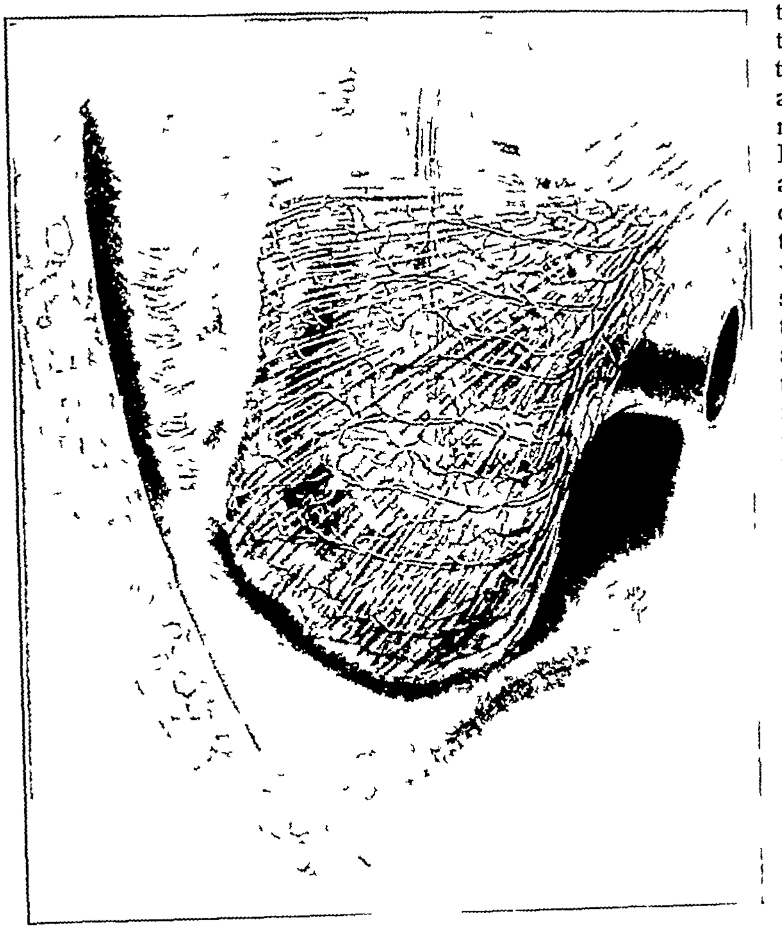

Fig 11—Difference in appearance between Jackson's pericolitis membranosa vasculosa (covering cecum) and a fetal fusion patchlike membrane lateral to ascending colon In the vascular pericolitis or perityphlitis there is hyperemia of the branches of the arteria ileocolica

Dr J N Jackson, Kansas City, Mo This is a subject which has interested me considerably in the few years since I first described what has since been termed "Jackson's membrane" It is something I have not said much about in the last few years, because so much that I have said has been misinterpreted Many of these abnormalities exist because of fusion, transpositions, etc I am of the opinion that we have two distinct types of conditions clinically Undoubtedly there are a great many of these in which the clinical symptoms depend on the congenital malformation alone Contractions and angularities produce symptoms which disappear when the conditions are corrected mechanically Many of these cases have been relieved by division of the adventitious bands On the other hand, after considerable experience, I am inclined to believe with Dr Lynch that in a greater percentage there must be added infection If these patients must be treated surgically, they must be treated subsequently by attention to the colon I am coming to believe that in these advanced cases of membranous pericolitis the membrane never comes in contact with the cecum There are few adhesions and probably no absorption from the ascending colon I believe that most of these cases give rise to the old chronic symptoms due to chronic infection In some cases resection of the entire ascending colon is indicated

Dr Joseph Rilus Eastman, Indianapolis With the utmost respect for what Dr Jackson has just said, I should like to say that not once, but a hundred times I have seen over the cecum and caput coli that thin veil, and I believe most of the gentlemen here interested in these anomalous membranes about the cecum and ascending colon will say that he has seen precisely what Dr Jackson describes as membranous pericolitis on the cecum and caput coli many times I did not undertake to say that these irregularities in fusion occur in every case, nor frequently, but that occasionally we find irregularities of this normal fetal fusion between the outer lamina of the peritoneum, mesentery and abdominal serosa in definite association with an arrest of the action of intestinal contents in that section, in association with stasis in that zone It has not rarely been observed that the separation of this excessive fusion will permit the passage of extravasated abdominal contents, giving relief to the stasis I do not say that it happens often, it certainly does occasionally It oftentimes comes to pass that by the wiping away of these adhesions we can restore the function of the descending colon I did not go into the relation of these anomalies to the various syndromes mentioned in the paper, because there was not sufficient time I did try to emphasize that there is such a thing as decided excessive fusion between the mesenteries of the large intestine and the abdominal peritoneum, and that such excessive fetal fusion may extend around to the front to the longitudinal mural band and even across it in a medial direction, and that such fusions will interfere with the function of the large intestine It is well to remember the possibility of the appendix becoming arrested between the outer lamina of the mesentery of the large intestine and the abdominal wall so that when the layers are obliterated the appendix can again occupy the retroperitoneal position Then, too, it is worth while to recall that the postnatal inflammatory adhesions of the great omentum to the large intestine may represent a relationship of excessive fusion to the great omentum at the hepatic flexure and splenic flexure and may not represent adult pathology at all We are greatly indebted to Dr Jackson for what he has told us I doubt whether any of us ever understood what he meant by the membranous pericolitis which he described I can think of no reason why an inflammatory process evidenced by the dilation of the capillaries and in other ways suggestive of inflammation should be limited to the ascending colon I can understand how with the descent of the cecum the peritoneum might be pulled over the descending or ascending colon from the mural serosa, but this membrane pulled over would not have the appearance described by Dr Jackson, that of the parallel crossing vessels In the condition which Dr Jackson describes as having partially separable membrane it is like shaving smoke and when the

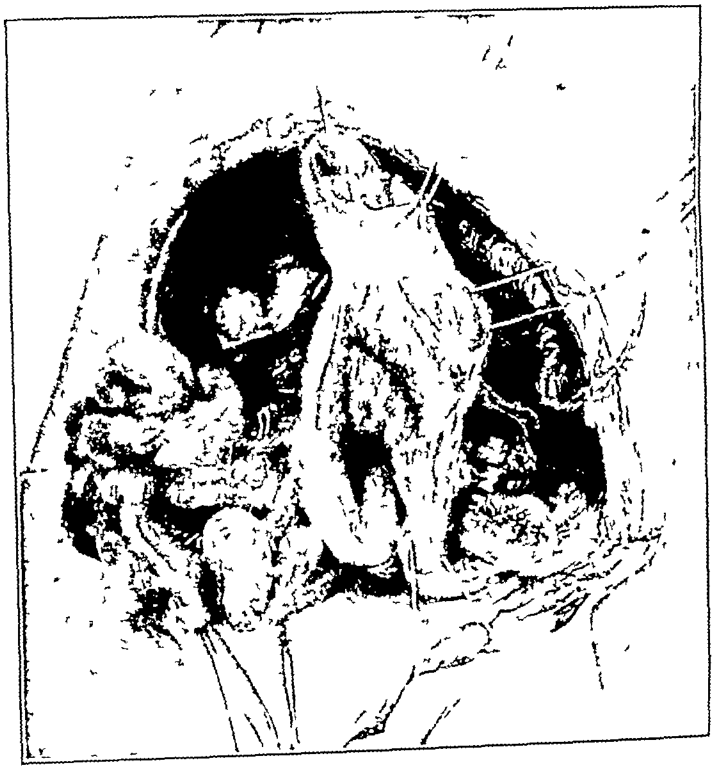

Fig 12—Erratic fusion of contiguous fetal peritoneal surfaces

membranes are removed the condition is favorable to the formation of new adhesions. I think that we do find these two distinct types about the cecum and ascending colon. One is represented by the persistence of the excessive fusion between the large intestine, the mural bands and serosa of the fetal period, the other by the inflammatory condition of the ileocolic artery.

INDICATIONS FOR CHOLECYSTECTOMY *

DONALD GUTHRIE, M.D.

SAYRE, PA.

The operation of cholecystectomy has been accepted by experienced surgeons as the one of choice for most cases of gallbladder disease that in former years were simply drained. The literature of late has been filled with articles by many surgeons, the enthusiastic advocating cholecystectomy for all cases, the conservative decrying its general adoption.

Believing it would be of interest and profit to find out the profession's attitude in regard to the indications for cholecystectomy, I have reviewed the literature extensively and have been in correspondence with forty-five experienced abdominal surgeons. In the letters sent out the following information was asked:

1. What percentage of cases of cholecystostomy have had a recurrence of trouble following operation?
2. Are you performing cholecystectomy more frequently than in the past?
3. Have the results been better than when simple drainage was used?
4. In what cases do you consider cholecystectomy the operation of choice?
5. What are the contraindications for its employment?
6. As a rule, how do you treat empyema of the gallbladder?
7. How does the mortality of cholecystectomy compare with cholecystostomy in your work?

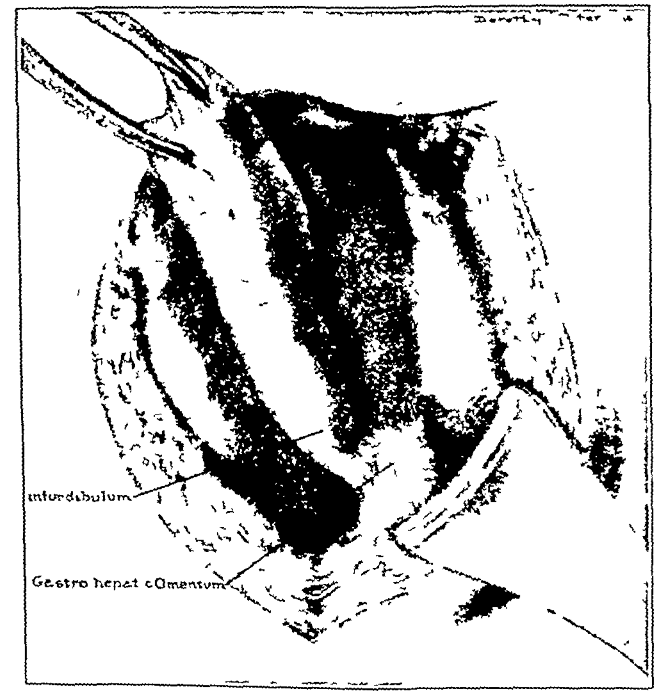

Fig. 1.—The liver and gallbladder are drawn out into wound; the infundibulum of the gallbladder is seen lying over the cystic duct and artery.

Question 1. What percentage of cases of cholecystostomy have had a recurrence of trouble following operation? This question has been a difficult one to answer accurately. It was not answered by five men, the remaining forty reported as follows:

Very few recurrences	5
Few recurrences	3
Small percentage of recurrences	5
	13

Other replies were: Many, exact number unknown, an uncomfortable percentage, many bitter disappointments.

The numerical percentage given by twenty-nine men varied from 1 to 33⅓ per cent of failures. The average was 9.5 per cent.

Coffey reports infrequent recurrences. LaPlace gives 33⅓ per cent. Judd writes, "impossible to state, but we have had a large number of recurrences." Stanton, who has carefully investigated Ochsner's cases and his own, reports recurrences of trouble in 14.5 per cent of cases. Kehr estimates there have been 15 per cent of failures in his work.

Question 2. Are you performing the operation of cholecystectomy more frequently than in the past? There were forty-five answers: thirty-six answered in the affirmative, nine in the negative. Among the thirty-six affirmative answers some of the replies are of interest. Bevan and Frazier perform cholecystectomy in from 80 to 90 per cent of their cases. Elting in 60 per cent, Gibbon in 50 per cent, and Clark in 33⅓ per cent. Martin employs cholecystectomy more frequently, but considers it a more dangerous operation, Deaver, more frequently than formerly, but not so often as many surgeons, Crile not much more often. In 1907, the Mayos performed 100 cholecystectomies, and 261 cholecystostomies, in 1915, 915 cholecystectomies, and but sixty cholecystostomies.

There were nine negative replies to the question. Bloodgood, Kelly, Cullen and Grant are not performing the operation so frequently as formerly.

Question 3. Have the results been better than when simple drainage was used? Thirty-six men answered yes, seven answered no, two failed to answer.

Question 4. In what cases do you consider cholecystectomy the operation of choice? The chief indications for removal of the gallbladder recommended by the majority are any disease of the gallbladder wall itself and damage to the cystic duct.

Three surgeons prefer cholecystectomy in every case, two, in all cases except those complicated by pancreatic disease, 80 per cent advise removal when any disease of the gallbladder wall with or without stone is found, mentioning as indications thick-walled, enlarged gallbladders, thick-walled, contracted gallbladders, adherent gallbladders, adhesions to the pylorus (Lund), gangrenous gallbladders, in early malignancy confined to the gallbladder itself. Kehr urges cholecystectomy as a prophylaxis in cases of chronic cholecystitis which prove rebellious to medical treatment. Several (Mayo, Judd, Lathrop, Gibbon and others) call attention to the possibility of systemic joint infection secondary to disease in the wall of the gallbladder, as pointed out by Rosenow, and advise cholecystectomy as a prevention.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Obstruction or obliteration of the cystic duct, either by stone or stricture, is the next indication advised by the majority A few call attention to the liability of stricture of the duct following the removal of an impacted stone Some of the conservative men think cholecystectomy only indicated in the presence of gangrene and suspected malignancy of the gallbladder itself Kelly employs cholecystectomy only in thick, contracted gallbladders and malignancy

Mayo Robson mentions (1) phlegmonous cholecystitis, (2) gangrene of the gallbladder, (3) chronic cholecystitis, (4) in mucous fistula or hydrops due to stricture of the cystic duct, (5) in empyema, (6) in cancer

Deaver advises the operation of cholecystectomy for (1) hydrops from obliteration of the cystic duct, (2) calcareous degeneration, (3) the cholesterin gallbladder of Moynihan, (4) chronic empyema, (5) gangrene, (6) carcinoma limited to the gallbladder itself, (7) extensive laceration or perforation of the gallbladder

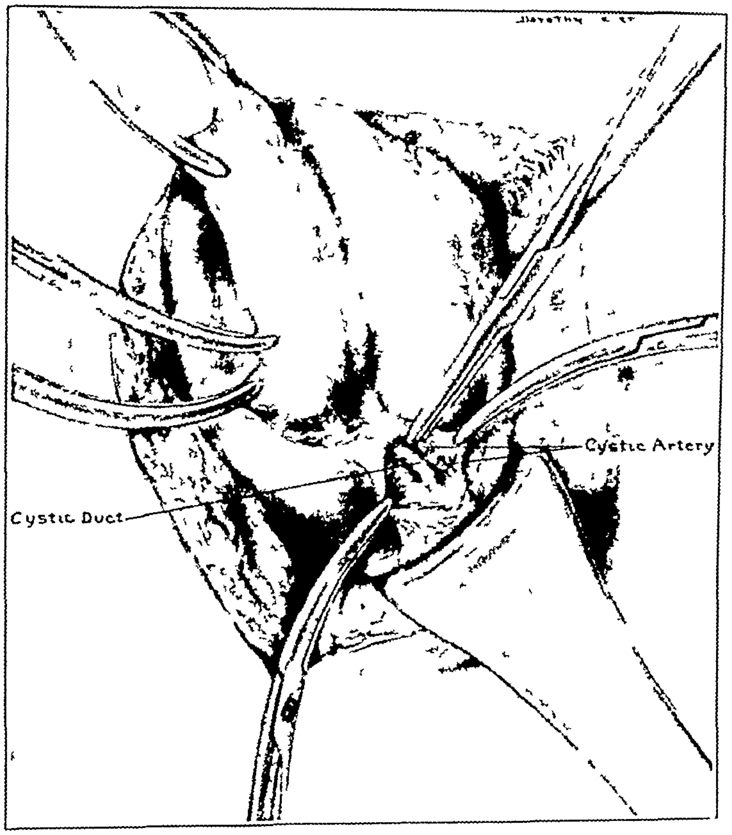

Fig 2—Infundibulum of the gallbladder lifted up away from the gastrohepatic omentum, exposing cystic duct and artery

Crile advises cholecystectomy (1) if the cystic duct is occluded, (2) if the cystic duct has a decubitus, (3) if the gallbladder wall is injured by disease

Elting advises the operation in old chronically thickened and adherent gallbladders and in certain acute diseases of the gallbladder in which there is no evidence of serious disturbance of the liver or the ducts

Lilienthal gives all indications cited above and concludes that it is his belief that any gallbladder that is worth operating on may with advantage be removed

Erdman says cholecystectomy limits morbidity and increases efficiency As a result he is performing cholecystectomy in almost every case although there are some cases in which cholecystostomy must be performed

Lane urges cholecystectomy because it removes the natural habitat of gallstones in the body and lessens the chance of recurrence Cholecystectomy also gives an immediate and more comfortable convalescence He quotes Finney as saying that more secondary operations are performed after cholecystostomy than after cholecystectomy Crile believes that the clinical results of cholecystectomy are better than those of cholecystostomy, just as nephrectomy for a pus kidney is better than nephrotomy He has never seen any adverse clinical results following excision of the gallbladder

Babcock recommends cholecystectomy in the first stages of cholecystitis, but emphasizes many of the technical dangers Cholecystostomy ought to be largely restricted to the third stage of cholecystitis, for cases of empyema, perforation, gangrene, and pancreatitis with duct involvement He thinks in the hands of the average surgeon the mortality of cholecystectomy in the first stages of cholecystitis is less than for cholecystostomy in the last stages of the disease

C H Mayo says cholecystostomy and the removal of stones will cure symptoms of mechanical obstruction, but does not cure chronic cholecystitis and cannot restore the destroyed walls of the gallbladder or free it from adhesions He advises cholecystectomy for these and for all cases in which infection is the major feature, with or without stones Chronic pancreatitis with gastric symptoms cannot be cured by cholecystectomy, but requires prolonged drainage

Question 5 What are the contraindications for cholecystectomy? The chief ones may be said to be the following Inexperience of the operator Inexperience of the anesthetist, one who may not appreciate the fact that manipulations about the liver ducts may cause the patient to strain or cough, although fully anesthetized Desperate condition of the patient, which will not permit any prolonged operation or any additional trauma In the very obese, in whom good exposure cannot be obtained, or in the presence of perihepatic adhesions which make it impossible to draw the liver well down and rotate it outward through the wound Edema of the gastrohepatic omentum and swelling of the ducts making it almost impossible to recognize them, is mentioned by some Ochsner does not think it wise to operate on any case in the very acute stage Mayo Robson does not believe in removing the gallbladder if there is no patency of the common duct Deaver advises passing a probe through the cystic duct, the common duct, into the duodenum in all cholecystectomies to make sure the common duct is patent Porter advises against removing the gallbladder if there is the slightest chance that it may have to be used for future drainage Frazier, Deaver, Mayo, and Crile advise against cholecystectomy in pancreatic disease and in acute empyema Cholecystectomy is contraindicated in patients who have already had one major operation performed, as a hysterectomy or umbilical hernia repaired

Clark was one of the first to advise exploring the gallbladder by touch through a midline incision during the course of other operations, believing that the gallbladder was the cause of a lot of the supposed gynecologic dyspepsia In a recent paper he urges that the best judgment be used by the operator in deciding whether it is safe to attack the gallbladder at the time or to wait and have the patient submit to another operation

Swope advises against removal when adhesions are so extensive that removal would be attended with marked traumatism and leave large areas of raw surfaces He believes that a diseased gallbladder, like a diseased appendix, should be removed when the operation is safe, still, there are exceptions He advocates cholecystectomy for hydrops and chronic empyema in the quiescent stage, when the infection has ceased to be active

Question 6 As a rule do you treat acute empyema of the gallbladder with cholecystectomy or drainage? Forty-four men replied to this question Thirty-three favored cholecystostomy, among whom were Crile, Deaver, Vander Veer, Estes, Cullen, Tinker, Gaub, Finney, Mulligan, Lower, McMullen, Clinton, Lathrop, Porter, McLean, Van Meter, Grant, Kelly, Gibbon, Loop, McGuire, and others

Ochsner advises primary drainage and excision later, as do Werder, Stanton, Clark, and others Elting feels that the gallbladder is only a part of a general infection and that drainage is needed Bevan drains if the patient is very sick, but removes the gallbladder if the patient's condition is good or if the gallbladder is gangrenous

Coffey does cholecystectomy in more than one half his cases He believes the ones he drains should have the gallbladder removed later Martin, Frazier, Haggard LaPlace, Andrews and Beckman favor cholecystectomy

Judd writes "No definite statement can be made as to the best procedure in acute empyema This is a matter that must be left to the surgeon's judgment in the individual case If we can do a cholecystectomy as safely, we prefer to do it, though many times we believe that a cholecystostomy should be followed later by a cholecystectomy" Deaver has the same advice to give and says the question often makes Hamlets of us all

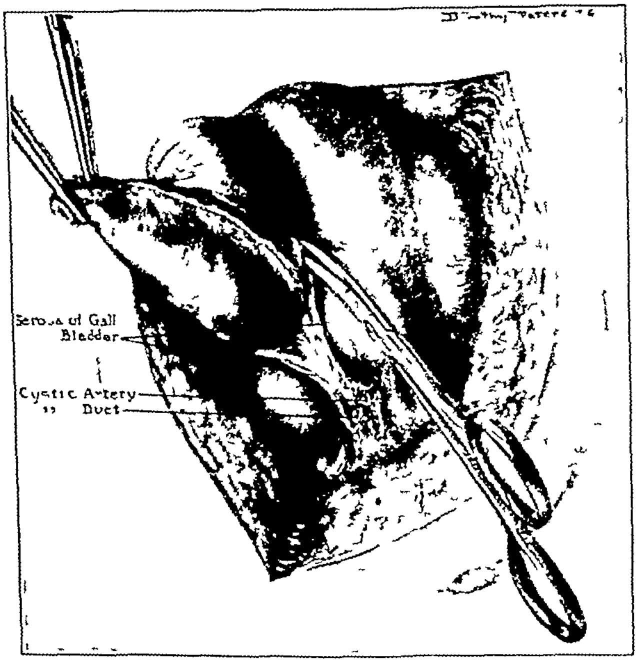

Fig 3—Cystic duct and artery ligated separately gallbladder being dissected free from its bed, leaving a narrow strip of serosa

Question 7 How does the mortality of cholecystectomy compare with cholecystostomy in your work? Among the forty-five answers to this question, two stated the difference in mortality was not known, four men's work showed a lower mortality for cholecystectomy than for cholecystostomy, eighteen reported the mortality the same for each operation, twenty-one had a higher mortality for cholecystectomy than for cholecystostomy (ranging from 0 5 to 3 per cent)

The mortality for either operation was estimated by many men to be below 2 per cent

Cholecystectomy is an operation, attended I believe with many more technical difficulties and dangers than simple drainage, and I regard it as a much more formidable one Even in spite of good anesthesia, good assistance the Bevan incision good exposure cannot always be had and the operation cannot be as safe as drainage, if there is poor exposure The operative dangers, aside from shock, are hemorrhage from the cystic artery, hemorrhage from the cut liver surface, requiring packs, and injury to the common or hepatic ducts

Hemorrhage from the cystic artery may occur at the time of operation or later, from slipping of a ligature Injury to the duct may be caused by clamping off the duct too close to the common duct, or by not appreciating the fact that the cystic duct oftentimes lies well up underneath the infundibulum or pelvis of the gallbladder, and that the common duct may lie directly beneath the pelvis

As emphasized by Mayo and Judd, the folds of the gastrohepatic omentum should be split, the infundibulum of the gallbladder should be lifted up and separated from it by a dry gauze dissector, as advised by Mayo, or clamped by forceps, as advised by Deaver, to expose the cystic duct It should be freed completely before it is clamped and cut Before tying it off a probe is passed into the duodenum to make sure the common duct is patent The artery is found, as a rule, to the inner side of the duct and above it It is tied separately The dissection is carried from below upward, because the circulation is controlled from the start and better exposure can be had by using the fundus of the gallbladder to hold the liver out of the wound

Hemorrhage from the liver surface of the gallbladder bed can be prevented if the serosa is split in the long axis, dissecting the gallbladder out of its fibrous coat so as not to trespass on the liver If there is much infiltration of the walls of the gallbladder it had better be removed in its entirety

SUMMARY AND CONCLUSIONS

Reports show that recurrences happen in 9 5 per cent of cases that have had cholecystostomies performed The recurrence of trouble following cholecystectomy is certainly small, the exact percentage is not known

Cholecystectomy is employed much more frequently than in the past and is a better operation, but it is attended with many more operative difficulties and dangers than simple drainage The gallbladder should be removed when its wall is diseased or the patency of the cystic duct is in question, provided the patient's condition will permit it

The contraindications for the operation are critical states of the patient, acute empyema, infection of the ducts and pancreatitis, where drainage is desired

It is safer to treat acute empyema of the gallbladder with simple drainage and only right to explain to the patient that a second operation may be necessary

Two safe operations are much better than one dangerous one, and in the case of doubt, simple drainage should be employed, especially by those inexperienced in gallbladder surgery

ABSTRACT OF DISCUSSION

Dr John B Deaver, Philadelphia I agree with Dr Guthrie in toto Much in this operation depends on the man behind the gun Much harm has been done to the common and hepatic ducts by the removal of the gallbladder by men not fully equipped I know of no more difficult operation, in certain cases, than cholecystectomy In many instances the gallbladder has been taken out when it should have been left A living patient with a gallbladder is better than a dead patient without a gallbladder I have been interested in the subject of pancreatitis for a certain number of years, and with my assistant, Dr Pfeiffer, made investigations of the influence of the secretions of the pancreas and lymphatics and find that these would be in favor of drainage against removal Not only must the gallbladder be drained but the common duct We must be able to read the signboards at the crossroads, to recognize the anatomic landmarks If not we shall get into trouble in our surgery of the gallbladder and ducts There is no subject that demands more greatly the master diagnostician or greater surgical skill

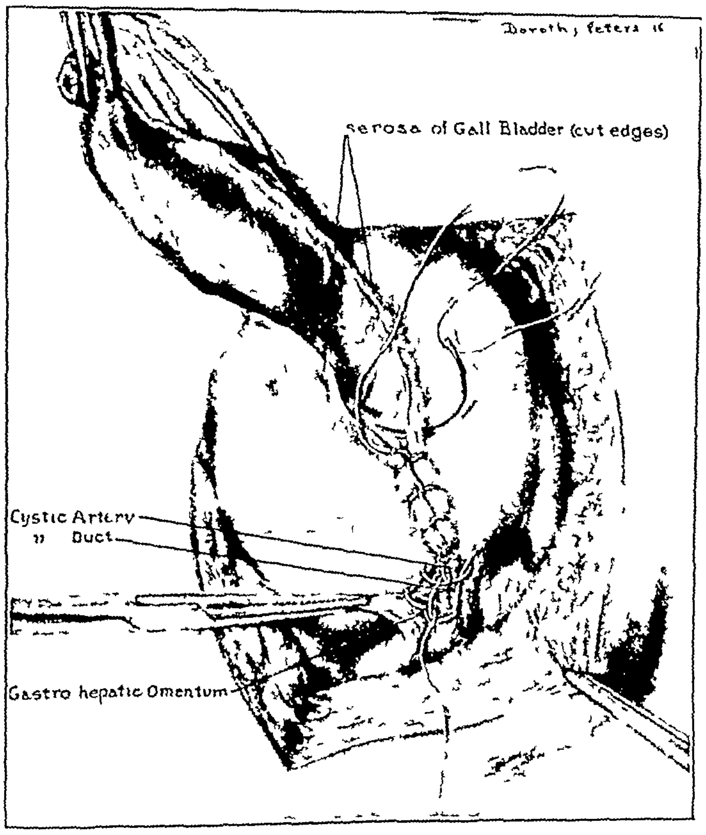

Fig 4—*Split in gastrohepatic omentum being closed, covering cut ends of cystic artery and duct, suturing cut edges of serosa*

Dr Harry S Noble, St Mary's, Ohio This question *is most important* It is but a few years since the one operation on which all abdominal surgeons were agreed was the drainage of the gallbladder in the presence of infection This was as axiomatic as the removal of the infected appendix, or the evacuation of pus under pressure Suddenly this operation is called on to give reasons for its existence It seems to me Dr Deaver struck the nail squarely on the head when he said it depends on the man behind the gun, for it does depend on the mental attitude of the operator, his belief or disbelief as to the *function* of the gallbladder determines his treatment of the organ The routine removal of the gallbladder is a slight justification of the young surgeon who cured club feet by means of an amputation The gallbladder has a function, and this important organ should be conserved whenever possible *There is one* fact observed by many surgeons in many lands, that should positively preclude the unnecessary removal of *the gallbladder, and that is the process* of dilatation which occurs in the common duct, and the attempt of nature to regenerate another gallbladder from the stump of the cystic duct Florcken reported a case of regeneration of the gallbladder with the formation of stones two and *one-half* years after removal of the gallbladder I believe a similar case was reported through the columns of The Journal a few weeks ago This process of dilatation in the duodenum is so well marked, that on one occasion it was mistaken for the duodenum This fact alone *proves* that the gallbladder has a function and should positively preclude its removal It has been shown by Halstead and *Opie that pure* bile injected into the pancreatic duct will cause a violent and dangerous pancreatitis, whereas bile, when mixed with *mucus* and so injected, will cause only a mild pancreatitis The ampulla of Vater normally contains bile, pancreatic fluid, and mucus Kemp of London in some of the earliest experiments on this subject showed that there was a difference in the alkalinity and chemical reaction of bile before and after passing the gallbladder The gallbladder is one of the most constant organs in the abdomen of the vertebrate tribe—it is not in the least degenerative or vestigial in its actions Why is it so constant in its occurrence, and why so uniform in size and appearance *throughout* the animal *kingdom?* Man was given a gallbladder before he was given a urinary bladder, and so far as I can learn the gallbladder is universally present in the carnivora Remove it if you must, but accord it the same consideration you would an eye or a kidney, sacrifice it only when its potentiality for harm is greater than its *possibility for good*

Dr F F Lawrence, Columbus, Ohio I want to call attention to the fact that, as a rule, the condition for which the gallbladder is operated on is not limited to the gallbladder, the common or the hepatic duct, but commonly involves a large part of the bile tract The small hepatic ducts in the liver are also involved It is not uncommon to find coming out of the drainage tube two, four or six weeks after a cholecystostomy, small stones which have come down from the small hepatic ducts, thus proving the involvement of the small ducts *in the* substance of the liver The common duct is always *partially* or completely obstructed In all the jaundice cases the common duct is obstructed Drainage must be complete in order to have recovery Suppose you remove the gallbladder and place gauze or tube drainage down in the common duct You must wall off with gauze or other material to protect the general peritoneal cavity Sooner or later you will have not only morbidity but mortality, because you have created a condition equal to or greater than that for which you operated, in the way of adhesions about the duodenum, hepatic flexure of the colon, the pylorus and other structures in the right upper quadrant If the gallbladder were an organ like the appendix, there might be some excuse for its removal, but its removal should not receive the sanction of surgeons in general In other words, cholecystectomy should be sanctioned only for malignancy, gangrene and acute perforation of the gallbladder, and I am not sure that it should be sanctioned for *the last named*

Homemade Sterilizer for Dairy Utensils—A simple and *efficient* homemade steam sterilizer for dairy utensils, which can be very cheaply constructed, is described in Farmers' Bulletin No 748 of the United States Department of Agriculture The insufficiency of the most thorough ordinary cleanliness and the necessity for sterilization of all *articles* that come in contact with milk is becoming more and more impressed on dairy workers The apparatus described is made out of an ordinary roasting pan, some galvanized sheet iron, sheet asbestos or paper packing and a small piece of steam pipe. It can be used on the kitchen stove or on any similar source of heat and will furnish steam at the outlet pipe at a *temperature* of 205 F to 211 F, the lower temperature being the minimum to secure sterilization and subsequent drying of the apparatus

FAT EMBOLISM IN BONE SURGERY

INCIDENCE AND PREVENTION *

EDWIN W RYERSON, M D
CHICAGO

Fat embolism, as a clinical entity, received but little attention in this country until the excellent and scholarly paper of A S Warthin[1] appeared in 1913

The clinical picture in fat embolism is fairly well marked There is usually an incubation period of from twenty-four to thirty-six hours after the traumatism, whether surgical or accidental In severe, crushing injuries this period may be reduced to three hours, as in the case reported by Beitzke[2] Then ensues difficulty in respiration, not a true dyspnea, but rather an air hunger This marks the entrance of the fat into the lungs from the right heart Some patients may show no other symptoms and may make a speedy recovery The temperature is not much elevated in this variety, but the pulse and respiration are rapid

In severer cases the fat passes from the lungs to the left heart and into the general circulation Entrance of the fat into the cerebral circulation causes nausea and vomiting, and the patient may become somnolent or comatose The temperature is much elevated, and may reach 106 or 107 F Fat appears in the urine and sometimes in the sputum Petechiae may appear in the skin It is hardly possible to estimate the mortality rate on account of the insufficiency of records

The occurrence of several fatal cases in the writer's experience has led him to consider it a much more frequent and serious danger in bone and joint surgery than he had formerly supposed

In 1905 a young woman was brought to the Chicago Policlinic Hospital with a Pott s fracture of the ankle, incurred a week previously, with marked deformity She was given nitrous oxid gas, and the deformity was reduced without difficulty by the late Dr A B Hosmer, assisted by the writer In twenty-four hours there was marked difficulty in respiration, and the temperature rose to 102 degrees No diagnosis was made beyond a probable ether pneumonia She died in the course of the next twenty-four hours, and necropsy showed marked fatty embolism of the lungs No examination of the brain was permitted The urine was not examined for fat

In 1914 a child was operated on by the writer for drop-foot due to infantile paralysis, at the Home for Destitute Crippled Children A silk ligament suspension of the foot was done small holes being drilled in the first and fifth metatarsal bones and in the tibia, through which the silk was passed In about twenty-four hours the child, who had shown no shock and but little discomfort up to this time, began to vomit and to have difficult respiration The temperature rose to 103 The urine contained no acetone and no albumin Fat embolism was not suspected, and no necropsy was obtained

In the same year a boy of 8 was operated on at the Children's Memorial Hospital for severe paralytic scoliosis An Albee bone transplantation was made, a splint cut from the tibia by a motor saw being sewed into a cleft made by splitting the spinous processes of the lower dorsal and upper lumbar vertebrae There was very little shock or postoperative discomfort, but in thirty hours a well-marked air hunger and rise of temperature supervened The boy died a day or two later Fat embolism was not suspected in this case, and no special examination was made with reference to it.

The occurrence of these two fatalities naturally caused a great deal of sorrow and anxiety to the writer The operations had been performed under the same technic which had been used in a large number of other cases in which no such results had been noted Dr Ludwig Hektoen, professor of pathology in Rush Medical College, on hearing a more detailed description of the cases than has been given above, said at once that fat embolism seemed to him highly probable A search of the literature made this probability seem even more certain and also revealed the fact that the large majority of the reported cases occurred after injuries or operations involving the lower extremity

During the year 1915 another case of fat embolism occurred in the writer's service at the Children's Hospital, in which the diagnosis was made before death and confirmed by postmortem examination This was an infant about 8 months of age, with congenital club feet The feet were manipulated under ether anesthesia, and the plantar fascia and Achilles tendon were divided with a tenotome The day after operation the child began to breathe with difficulty, the temperature rose high, and death ensued a day later At necropsy the lungs were found to be the seat of marked fatty embolism No examination of the head was permitted

Several other cases have been recalled which were probably fat embolism, but which were not fatal, and in which no diagnosis was made at the time

The treatment of fat embolism, as proposed in the literature, is apparently not on a well-defined basis Only four specific procedures have received attention

Czerny[3] advised the injection of 2 per cent sodium carbonate, probably with the idea of forming a soluble soap This method has received little support

Schanz[4] gives a large quantity of normal saline infusion subcutaneously, and would inject it into a vein if the symptoms were very severe This method does not seem rational to me

Wilms[5] drained the thoracic duct for four days, with recovery of the patient This procedure has been recommended by others, notably Tanton[6] in his comprehensive paper It is based on the theory that the fat is carried principally by the lymphatic system rather than by the venous system, a theory which will find very few supporters

Riener[7] advised the insertion of a cannula into the saphenous vein, and thence into the femoral vein, allowing the outflow of the venous blood with its admixture of fat This treatment is based on the theory that the dosage of fat which causes the initial symptoms, sufficient for diagnosis, may not necessarily be fatal, and that the fatal dosage has not progressed as far upward as Poupart's ligament It seems rational and valuable Tanton[6] and others would open up the area of injury and remove the accumulated blood and fat, using drainage or tamponage This also seems advisable Venesection and lumbar puncture have been recommended

None of the methods of treatment above mentioned however, can be considered to have any distinct curative value in cases in which a large quantity of fat has been forced rapidly into the lungs From a study of the reported cases it can fairly be assurred that the process is usually a very rapid one, and that by the

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit. June 1916

[1] Warthin A S International Clinics 1913 Series 23 Vol 4

[2] Beitzke Rev med de la Suisse romande 1912 xxxii 501 abstr The Journal A M A Oct 19 1912 p 1494

[3] Czerny Quoted by Warthin, Footnote 1

[4] Schanz Zentralbl f Chir Jan 1, 1910 abstr The Journal A M A Feb 12 1910 p 576

[5] Wilms Sem med 1910 xxx.

[6] Tanton Jour de chir March 1914 xii No 3 abstr The Journal A M A May 9 1914 p 1511

[7] Riener Centralbl f Chir 1907

time a diagnosis is made any form of recorded treatment is likely to be of little value

It becomes necessary, therefore, carefully to consider the methods of prophylaxis

For many years I have seldom used the tourniquet in my operative work, for reasons which need not here be detailed It is possible that this fact may explain the greater incidence of fat embolism in my clinics than in those of some other operators No mention is made in the literature of the routine use of the tourniquet as a means of prophylaxis up to the year 1915

It seems likely that a complete stasis of the circulation during and a short time after the operative procedures would probably prevent or at least reduce the transportation of the fat through the venous channels Burger believes that fat already disintegrated may become bound by coagulating blood

The tourniquet can be left in place for as long as half an hour, and can then be gradually loosened This idea was suggested in 1914 to Dr H Gideon Wells, director of the Sprague Memorial Institute, and a series of experiments was carried out under his direction at the University of Chicago in the spring and summer of 1915 A large number of dogs and rabbits were subjected to bone operations of various kinds The writer had supposed that the removal of a bone splint from the tibia would be likely to cause severe fat embolism, since the medulla of the tibia is invaded and more or less injured by the saw blade The experiments proved that this is not true, and that fractures and contusions of the bones cause much more embolism than does the performance of a typical Albee bone transplant to the spine The use of the chisel and mallet is far more dangerous than the motor saw

The experiments showed, also, that when a tourniquet was applied the fatty embolism from all kinds of traumatism to the bones was markedly decreased This evidence convinced me that the tourniquet should be made a matter of routine in bone surgery

When the laboratory work had been practically completed (a year after it had been suggested by me) an article was published by L Burger[8] He states that the tourniquet should be applied to ward off fat embolism in all cases of fracture, and advises Momburg's constriction at the waist line in very severe cases, especially with crushing injuries of the pelvis "Half an hour should be sufficient," he says Another precaution is to avoid the transportation of patients with such injuries, "any attempt to move them to a distance is liable to bring on fatal fat embolism"

The article confirms that the tourniquet is the best method of preventing fat embolism

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8 Bürger, L Fat Embolism in Military Surgery, Med Klin, Sep 1915, No 36, abstr, The Journal A M A, Oct 23, 1915, p

THE EVOLUTION OF OSTEOCHONDRITIS DEFORMANS COXAE JUVENILIS *

ALBERT H FREIBERG, MD
CINCINNATI

In 1905 I described[1] two cases of arthritis deformans coxae juvenilis whose chief clinical interest lay in the impossibility, at that time, of distinguishing them from adolescent coxa vara without the aid of the Roentgen plate They were the first cases of the kind reported in this country, and the examination of the roentgenograms made it evident that we were dealing with deforming disease of the hip which must have been in existence for a long time and with whose early clinical phase we were totally unfamiliar In both instances we were dealing with intelligent patients coming from excellent social environment, and it would be only fair to presume that we might rely on the accuracy of their statements with reference to the indefinite character of the symptoms which were present in the early stages of the disease Both patients presented themselves with what was a finished deformity of the joint, to all intents and purposes, and both of them were under observation for over a year without material change in their condition, when the report was made The title to this report seems to have been misleading, since I have been made to call these case adolescent coxa vara, by some who have quoted them Although these cases had a history strikingly similar, the roentgenograms have, in the light of present knowledge, very striking differences These differences have assumed a practical importance to me in view of additional experience In the first case we were dealing with a boy of 14 years, and the Roentgen ray presented a deformity of the head of the femur best described by speaking of it as "mushroomed on the neck" The second case was that of a young man 22 years old, who had been aware of the condition since his sixteenth year, the roentgenogram showed here a deformity of the femoral head, such as is often seen in the so-called arthritis deformans of older persons, and which has been aptly likened to the shape of the glans penis In both cases there was positive denial of any injury which could be of causative importance

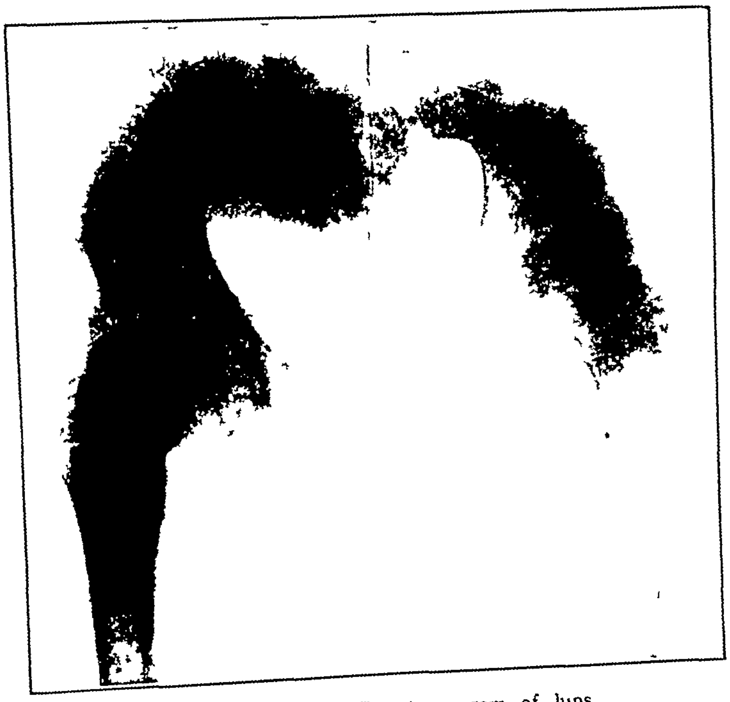
Fig 1 (Case 1)—Roentgenogram of hips

Since the report of these cases and those which preceded it, much progress has resulted in the study of the deforming hip disease of the young This is most largely due to the work of Perthes, who in 1910 described the early symptoms and characteristic Roentgen-ray appearances of a disease involving

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June 1916

1 Freiberg A H Am Jour Orthop Surg, July, 1905

chiefly the upper epiphysis of the femur, and it was he who first brought these changes forward as ending finally in a deformation of the head of the femur and the acetabulum which had been spoken of as arthritis deformans juvenilis Even though the deformity of the femur in its later stages bears much resemblance to that seen in the so-called arthritis deformans of adults, the disease which produces it in children and the changes seen in the roentgenograms nevertheless differ markedly from the disease of adults spoken of by Goldthwait as "hypertrophic" and by Nichols as "degenerative" arthritis The most striking difference is seen in the absence of new bone formations, or osteophytes, in those portions of the joint peripheral to its bearing surface In the symptoms, also, the disease of early life differs from that of the adult being in the former of much milder character, and, indeed, often of such insidious course as to escape detection until the terminal deformity has been discovered That these juvenile cases have in their earlier stages and in former years constituted largely the class of cases which we formerly regarded as mild hip tuberculosis seems today quite evident It seems very clear now that we have found here the explanation of the remarkably complete restoration of function in cases of hip disease which were sometimes brought forward as evidence of the efficiency of this or that method of treatment or of some one's particular skill in applying it

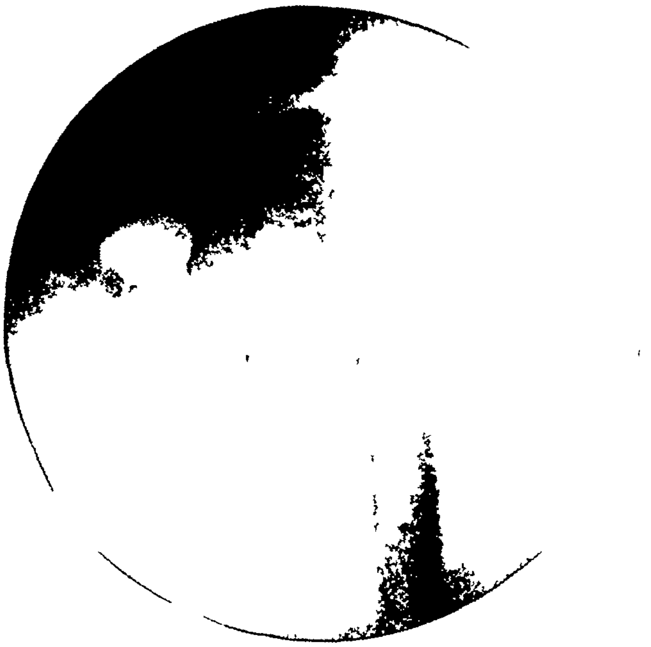
Fig 2 (Case 2)—Roentgenogram taken January 1907

The identity of the disease accurately described by Perthes and which begins usually prior to the eighth or ninth year of life with a characteristic flattening of the capital epiphysis of the femur and that condition seen in adolescence as a mushroom deformity of the upper end of the femur, seems today quite clear It has been established by the roentgenograms of cases seen early in the disease and those taken years later during the adolescence of the same patients Still more striking is the observation I have made in the first case which I present

Case 1—The patient is a boy of 12 years who came because of marked limp with flexion and adduction deformity of the right hip of one year's duration Although there was little pain there was distinct tenderness over the femoral head, and after a clinical examination I thought I was dealing with the deformity of hip tuberculosis Nothing was said concerning the left hip and my clinical examination did not disclose any abnormality The boy was otherwise apparently well though undernourished and pale and his temperature was 99 F and over on several occasions The roentgenogram was made of both hips (Fig 1) the right hip showed typical flattening of the capital epiphysis The epiphysis was quite dense with areas of increased radiability The left hip, to my surprise showed marked mushroom deformity of the head the capital epiphysis was greatly reduced in height and increased in width The mother on being questioned remembered a period of limping about six years before but had ascribed no importance to it There was no history of trauma more severe than that usually to be found in active children This case furnishes striking testimony to me, were further evidence required, that we are dealing with two phases of the same lesion, early and late I do not mean, of course to infer by this report that it is extremely rare to see this disease in bilateral form Bibergeil, in a bibliographic summary, found ten reports of such cases

I have, however found two cases among my records which are still more instructive, to my mind, since they were carefully observed during a number of years Furthermore, they were recorded at frequent intervals by Roentgen rays from a period near the inception of the disease to the time when the terminal mushroom deformity was presented in characteristic manner Both cases were looked on originally as tuberculous, and the one which I shall present was roentgenographed regularly at intervals of three months during the whole active period of the disease I look on it as offering certain important features in connection with the question of etiology and pathologic physiology

Case 2—S C W, a boy 7 years of age, was brought to me in January, 1907 He was an unusually well-developed boy, very tall and heavy, with the appearance of robust health The child of well-to-do parents, he was reared in a very favorable rural environment In August, 1906, he began to limp without having had any injury of consequence, as far as his parents knew Very soon after this he complained occasionally of pain in the groin and knee, of the right side Still later there developed starting pains at night without later consciousness of suffering He was still having distinct night cries when I examined him At this time he was walking with a decided limp, standing with enough abduction to obliterate the right gluteal fold There was one-half inch atrophy of the right thigh and motion was limited in abduction, adduction and both internal and external rotation The right hip was held in 7 degrees of flexion There was tenderness over the femoral head and thickening about the neck Some elevation of body temperature was always present on the numerous occasions when it was taken No tuberculin test was made The roentgenogram (Fig 2) made at this time shows a typical flattening of the capital epiphysis of the femur, which is itself of greater than normal density whereas there is some bone atrophy in the upper part of the neck

At this time the boy was taken to Dr V P Gibney for consultation who concurred in my diagnosis of tuberculous disease and returned him to me for treatment This consisted in the application of a traction brace with partial recumbency Some time later he was brought with a condition of greater sensitiveness and he was crying out quite often every night He was therefore kept in hospital for several weeks in bed with traction and was then sent home with a plaster spica and stilting brace In May 1908 the examination showed shortening of less than ½ inch, no night cries and very little muscle spasm The general condition was excellent The roentgenogram made at this time (Fig 3) shows however a marked change in the capital epiphysis, a piece appears to have separated distinctly from its lateral third. There is no sign of disease in the acetabulum. The boy had been treated for some months by means of Marmorek's serum and was one of a series of cases reported by me for this reason. In October, 1909, the examination showed him to be in excellent condition, without pain, tenderness or spasm. There was complete range of motion in the hip except in rotations, where a few degrees of limitation persisted. The roentgenogram (Fig. 4) shows a return of density in the capital epiphysis, the lateral part which seemed to have separated has apparently reunited. The epiphysis, however, is much flattened, and its lateral end is curved over the lateral aspect of the upper part of the neck. The acetabulum seems still unchanged. The boy was now permitted to go without any mechanical protection. He was seen from time to time during the year 1910, and was then dismissed from observation. In January, 1915, eight years after the first examination, he was again brought for examination because of a return of limping. This was not marked, and there was no pain. Limitation of motion was present in extremes of rotation only. The roentgenogram (Fig. 5) made at this time shows the typical mushroom deformity of the head with the flattened epiphysis.

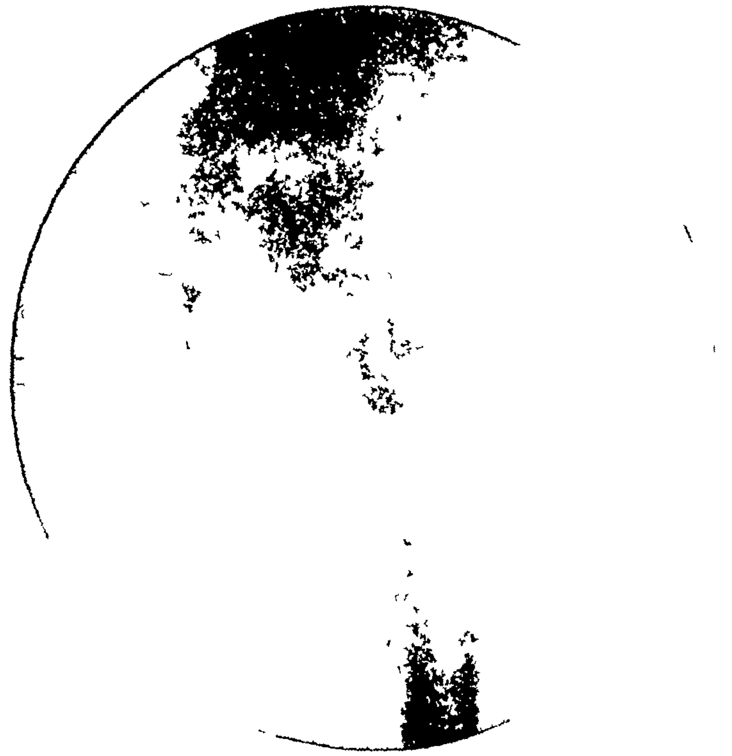

Fig. 3 (Case 2).—Roentgenogram taken May, 1908.

Viewed in the light of present knowledge, it seems plain to me that this case must be regarded as of nontuberculous character, and that it belongs distinctly in the category of osteochondritis deformans juvenilis as described by Perthes. The symptoms which were present must be looked on, however, as much more severe than we are accustomed to observe in such cases. Even so, to me they now spell an affection of infectious or toxic character, of low grade. Such a case coming today, in its beginnings, would call for a careful search for an infection atrium, and I regard it as more than probable that its discovery in tonsils or elsewhere would result in cutting short the progress of the disease and very likely the further development of deformity.

It seems erroneous to me to hold that a case has been made out for the traumatic origin of this disease. In the cases which I have observed the history of injury has always been most indefinite and not to be brought into clear relationship with subsequent symptoms or even with the side of the body which we find affected. The development of the disease in the opposite hip at a later time without the occurrence of distinctly related trauma would seem also to speak emphatically against injury as a cause. On the other hand, I believe that a search backward into the early history of well observed cases would usually reveal symptoms of distinctly inflammatory nature, such as slight fever, local tenderness and muscle spasm, to say nothing of the distinct night cries which I have noted in the two cases mentioned. The cases of congenital luxation of the hip which have been forcibly manipulated and which are used by Legg in support of the theory of traumatic causation are not convincing to me. In them the trauma is more direct than we are able to determine in our cases of osteochondritis; on the other hand, cases of congenital luxation which have gone unreduced without attempts at replacement very often show a deforming process in the femoral head which is presumably due to the effect of continued abnormal function. I have shown this to be the case, in fact, with traumatic luxation in the adult which has remained unreduced for years.

It seems to me far better to assume, as an etiologic basis for osteochondritis deformans juvenilis, a chronic infectious process of probably secondary character, just as we do in explaining other deforming joint diseases of later life. The circulatory peculiarities on which Legg[2] lays stress may be used to explain the changes which take place, even more appropriately in connection with infection and its associated progressive character than with trauma. This accords with the vascular theory of Wollenberg with which I have been concerned in another paper.[3] Therefore, I feel that there is no occasion to change the name given to this disease by Perthes and that it should remain until we can speak in more exact terms of its etiology and pathology. Thus far no cases have been continuously followed by Roentgen-ray observations for a long enough time to determine what the truly terminal deformity really is or to what extent it may change during the later years of adolescence and adult

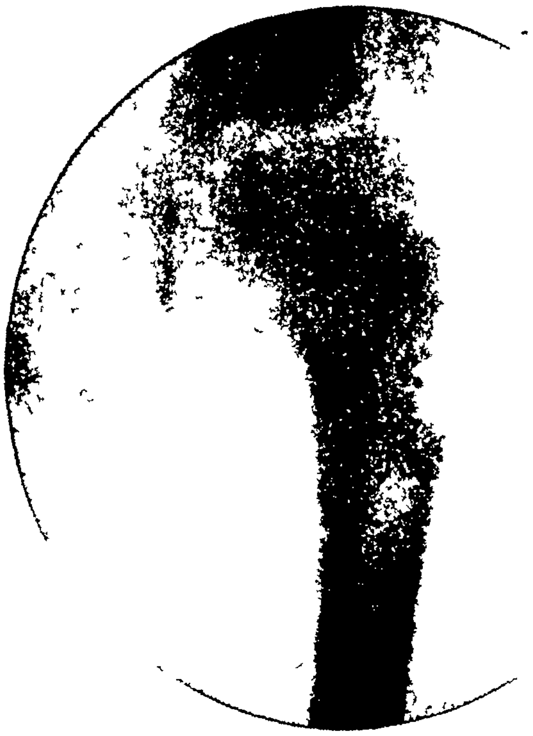

Fig. 4 (Case 2).—Roentgenogram taken October, 1909.

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[2] Legg: Surg., Gynec. and Obst., xxii, 307.

[3] Compare Freiberg and Woolley: Am. Jour. Orthop. Surg., 1910, viii, 491.

life On the contrary, it seems likely enough, in conformity with the observations of Preiser and others, that such a degree of disturbance of the joint mechanism will have as its result further deformity and disablement, as the years go on

If these considerations are to be taken seriously, as based on reasonable premises, it would be fallacious to assume that because the symptoms are of mild character and because recovery with much joint motion may be expected, mechanical protection is unnecessary or unimportant in this disease There is reason to believe that the terminal deformity is due to weight bearing and motion as much as in tuberculous disease, and the influence of the deformity in producing disablement many years afterward we do not even know As the result of our errors in mistaking these cases for tuberculosis in past years, we know that long continued fixation of these hips does not interfere with the return of joint motion for this reason I believe that this form of treatment should be patiently and carefully carried out If at all to be modified this should perhaps be done to the extent of adding stilting to fixation Finally I would urge again that in all future cases it should be incumbent on us to give our patients the most careful scrutiny in the earliest stage possible with a view to ascertaining the existence of focal infection, such as in the tonsils If discovered early and given appropriate treatment, this would bid fair to save for our patients future disablement and deformity and to abbreviate greatly the course of the disease

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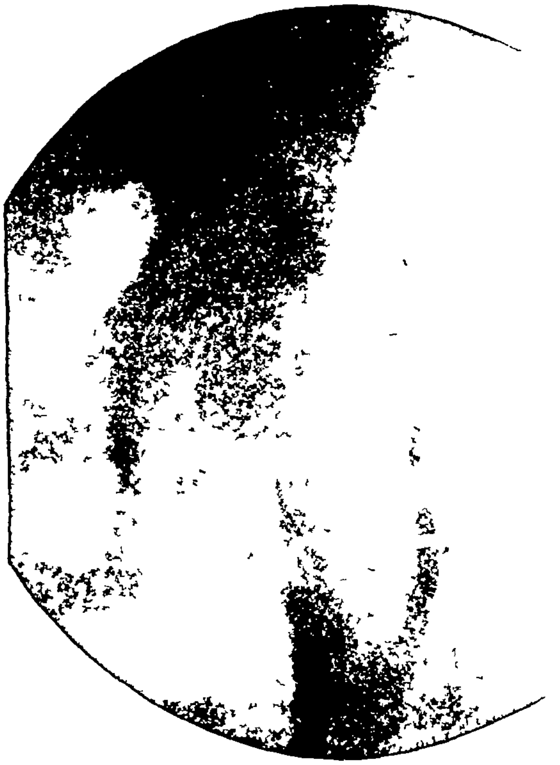
Fig 5 (Case 2)—Roentgenogram taken January 1915

ABSTRACT OF DISCUSSION

Dr. J R Kuth, Duluth, Minn Dr Freiberg, in drawing attention to infection as an etiologic factor in this most interesting condition, touches on what is most important as related to treatment Up to the present time, most attention has been given to the deformity itself, to late results in the hip joint and to the amelioration of deformity by treatment. In the few cases that I have seen and have been able to study, the destruction of the head at the time of first examination (and this was the first time that these patients presented themselves for treatment) was so far advanced that one could hope for very little more than a further increase in the shrinking-up process of the splintered head Among these cases was one which ran remarkably parallel to the one that Dr Freiberg described as being probably a severer form of Perthes' disease

In these cases I was left with the same impression as regards the infective origin as was Dr Freiberg The history of any injury was either denied or was so vague as to be valueless as a causative factor It would seem that if we are to derive much benefit from treatment of the condition from the infective point of view, either in the eradication of a local focus or in the treatment of some distant focus this should be done much earlier than the time we generally see these cases Inasmuch as these cases come for treatment at a time when the disease is far advanced and the deformity established to the extent in which we generally see it, the disease can probably be correctly described as a self-limiting one, the best treatment being rest, fixation and weight removal I did not understand Dr Freiberg as saying that all cases of osteo-arthritis deformans of adolescence are due to a preexisting Perthes' disease It would seem, from the cases described by Maydl, Zesas, Frangenheim, Von Brunn and others, that there really are cases of what is known as osteoarthritis deformans coxae of adolescence in which the individual may not have had a previous Perthes' disease If we are to think that these were probably cases of Perthes' disease, the observations of the Germans regarding the previous history, the date of onset, and the pathologic findings at operation, would then be very misleading

Dr Frederick C Kidner, Detroit My support of Dr Freiberg's theory of the infectious origin of the cases of so-called Perthes' disease is based on the study of only a single case It was a typical case of osteochondritis juvenilis, except in two particulars First, the child, in the beginning, had a slight fever, lasting three or four days Second, when he went to the hospital, he had eleven thousand white cells with 80 per cent of polynuclears The roentgenogram was typical The depression below the epiphyseal line was very plain and there was one spot in the neck of the bone which closely resembled an abscess I tunneled in through the greater trochanter, and opened a cavity just below the epiphyseal line, from which was obtained a low-grade staphylococcus, which died out in the second generation and could not, therefore, be used for guinea-pig inoculation It seems, on the basis of this case alone, that many of these cases are due to hematogenous infection originating somewhere else, as in the tonsils I wish, also, to make a plea for a longer and more persistent treatment of cases of Perthes' disease, because I think that many of the so-called 'mushroom' hips of adult life originate in this disease

Dr. John Ridlon, Chicago I have a case which, from the roentgenographic findings, I believed to be a typical case of Perthes' disease, but which went on to the development of a typical tuberculous abscess I am not yet certain that in Perthes' disease we really have a separate entity that can be diagnosticated with certainty

Dr Virgil P Gibney, New York While Dr Freiberg was describing the case in which he overlooked the other hip, I was reminded of two cases in young boys that I have seen within the last few years whose hips seemed to be going to pieces Some men said they were tuberculous I protested that they were not An internist got hold of a rather stout boy and treated the intestinal tract The stools were examined carefully and repeatedly, and bacteria far in excess were found easily accounting for the infection In a recent paper, Dr Niles reported the boy's health restored with restoration of function in both hips I begin to feel as Dr Freiberg does, that we are all at sea on our tuberculous hips, and I seem to feel hesitation in calling a case one of tuberculous disease without resort to laboratory tests We may think it is that, because of the symptoms, but we make no test, or, if we do we say that this test is not always reliable, and we feel that we are not getting very far With the aid of the intestinal specialist, the proctologist, the laryngologist and the dental surgeon, however, we may be able to find out the cause of infection Many are said to be rabid on the subject of special tooth abscesses We do not find them in children, but we find other foci of infection in the teeth of children A laboratory for the study of dental diseases will be established in Columbia University within a short time We should rely more on the pathologic findings in connection with accurate Roentgen-ray findings

Dr Henry Ling Taylor, New York A year ago I reported nineteen cases of Perthes' disease The cases now number over thirty There are several things quite evident from this and other material, and one is that the cases are not tuberculous Another is that the statistics of tuberculous hip disease have been seriously vitiated by counting these cases among them, just as formerly they were vitiated by counting in cases of coxa vara The latter condition has been separated from tuberculosis of the hip, and these cases will also have to be separated from it I pointed out a year ago, that Perthes' disease was the foundation of some cases of osteo-arthritis in adults several such cases have been observed These cases have practically all been diagnosed as tuberculosis of the hip, and even when the patients have recovered entirely from the disease, the fact that such a diagnosis has been made is a handicap to them It was pointed out by one of them, a doctor, that he had to pay a higher premium for life insurance on account of his hip condition having been diagnosed as tuberculous, which it was not In my series of thirty odd cases, several were ushered in with symptoms suggestive of infection Several others followed trauma, but both of these classes together constitute but a small minority of the whole number The treatment needed is very much milder than that for tuberculosis I have seen one case that seemed absolutely to demonstrate the evil effect of routine treatment on orthopedic lines The case was that of a young boy whose symptoms began over four years ago The condition was diagnosed as tuberculosis of the hip joint and the child was treated with the long traction splint The affection was certainly Perthes' disease, and the child now has over an inch and a quarter of shortening, of which one inch may safely be ascribed to the long continued suspension of the limb I feel, therefore, that it is an error to overtreat these cases

Dr Albert H Freiberg With regard to the cases reported by earlier observers as cases of arthritis deformans of traumatic origin, I went over these reports very carefully In the cases of von Brunn, particularly, osteophytes are described, but a careful examination of his illustrations fails to show that what he calls osteophytes should be so considered, in the light of what we now know about these, in deforming disease of the hip joint They are irregularities of bone, but not new bone-formations, which we mean by the word osteophyte At the same time, the reproductions are by no means excellent in the works referred to, and it is possible that if I had the original negative or the original prints, I might come to the opposite conclusion The histories are not characteristic There is no convincing evidence that any severe injuries happened to the children That a child had a fall and later developed symptoms, is just the kind of history we hear today in regard to tuberculosis of the joints, and does not prove an etiologic relation We must be careful about the effects of our treatment in these cases We are prone to feel that if, after a year or so, there is an apparent return to normal function, and there has been no loss of motion or length, the case is to be considered as finished, but the examination of the one case which I have reported shows that we are in no position to say what the end results will be in eight or ten years, so we shall have to be careful in coming to the conclusion that a case is ready to be released from treatment How an excess of protection can result in loss of length in a limb, is difficult to understand, except when the treatment happens to deprive the limb of function In the same way, in many cases of infantile paralysis the shortening is due to lack of use I should like to see such cases submitted to weight-bearing to some extent, rather than to the amount of protection that we have been using for tuberculous disease

ELECTIVE LOCALIZATION OF BACTERIA IN DISEASES OF THE NERVOUS SYSTEM *

EDWARD C ROSENOW MD
From the Mayo Foundation
ROCHESTER, MINN

Many bacteria retain for a long time the peculiar properties which determine their characteristic localization The importance of studying the infecting power of some in which these properties are less fixed has not been sufficiently considered

Some years ago I showed that the common occurrence of endocarditis in animals following intravenous injection of a staphylococcus from endocarditis and numerous strains of *Streptococcus viridans* from chronic infectious endocarditis depended to a certain extent on clump formation, and that simultaneously with the disappearance of this property, both from artificial cultivation and animal passage, endocarditis failed to develop[1]

The importance of making injections soon after isolation of the bacteria was emphasized at that time In 1909 Lewis and the writer[2] reported the isolation of a diplococcus from the thrombus in the portal vein in primary portal thrombosis, which produced retrograde thrombosis in radicles of the portal vein in a rabbit following intravenous injection The full significance of the results of the animal experiments, however, was not realized at the time

During my studies on the transmutation of pneumococci and streptococci[3] in which relatively avirulent strains were made virulent by successive animal passages, and highly virulent strains less virulent by cultivation, marked changes in localization following intravenous injection in animals were noted At certain lower grades of virulence, endocarditis, arthritis, cholecystitis, ulcer of the stomach, myositis and iritis respectively, occurred, while when the virulence was high, hemorrhages and edema of the lung and bronchopneumonia commonly occurred The latter observation is in accord with the results of Wadsworth[4] The results suggested the possibility that diseases of widely different symptomatology might be due to strains of bacteria of the same or closely related species, but having peculiar localizing or infecting powers Since then systematic cultures in which there was afforded a gradient of oxygen pressure have been made from diseased tissues in a series of diseases[5] Streptococci frequently very sensitive to oxygen have been isolated in many instances from the involved tissues, often to the exclusion of other bacteria in rheumatic fever, arthritis deformans, appendicitis, ulcer of the stomach, cholecystitis, and myositis, and a diphtheroid-

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* Read before the Section on Practice of Medicine at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

[1] Rosenow, E C Immunological and Experimental Studies on Pneumococcus and Staphylococcus Endocarditis, Jour Infect Dis, 1909, vi, 245, Immunological Studies in Chronic Pneumococcus Endocarditis Jour Infect Dis 1910 vii, 429 Further Immunological Studies in Chronic Pneumococcus Endocarditis New York State Jour Med, 1912 xii, 441, Experimental Infectious Endocarditis, Jour Infect Dis, 1912, xi 210

[2] Lewis, D D, and Rosenow, E C Primary Portal Thrombosis, Arch Int Med 1909 iii, 232

[3] Rosenow, E C Transmutations Within the Streptococcus Pneumococcus Group, Jour Infect Dis, 1914, xiv, 1

[4] Wadsworth, A B Studies on Pneumococcus Infection in Animals Tr Assn Am Phys, 1912, xxvii, 72 Pneumonia, a Bedside and Laboratory Study, Am Jour Obst, 1909 lix 1080

[5] Rosenow E C The Newer Bacteriology of Various Infections as Determined by Special Methods, The Journal A M A, Sept 12 1914, p 903

The streptococcus from the erythematous node in erythema nodosum The streptococci from rheumatic fever and erythema nodosum especially showed a preference for partial anaerobiasis Intravenous injection soon after isolation of these strains and commonly those from the respective focus of infection often showed a most marked tendency to localize electively in the tissues in animals corresponding to those involved in the spontaneous disease [6] The lesions were truly elective in many instances They approximated in type those of the spontaneous disease The elective property or peculiar tropic condition of the streptococci in the foci of infection was undoubtedly an important factor in producing the diseases studied The suggestion that other diseases whose etiology was still obscure might have a similar origin was at hand

By the use of the same or similar technic, verification of the results in ulcer have been brought forward by Gerdine and Helmholz,[7] Hardt,[8] and Moody [9] The results in iritis have been verified and extended by Irons, Brown and Nadler [10]

In this paper I wish to summarize briefly the results of an experimental study of the possible etiologic relation of localized foci of infection, especially in and about the teeth and tonsils, to diseases of the nervous system The technic used was similar to that previously described Owing to the wealth of material at my disposal in the Mayo Clinic and the willing cooperation of the patients and the members of the staff, favorable cases were selected for investigation Effort was made to obtain bacteria for cultures from the depth of the focus by expressing the infected material from tonsils with a laryngeal mirror, and by aspirating the infected pockets about teeth with a sterile pipet In the former it commonly happened that abscesses were ruptured, even in tonsils which appeared quite normal on the surface These were usually situated in the pole of the tonsils Tonsillectomy and extraction of teeth were done when indicated

The cultures for injection were usually incubated at 33 C in tall columns of ascites-dextrose broth (affording a gradient of oxygen pressure), for from eighteen to twenty-four hours, centrifugalized in the containers in which they were grown, the supernatant broth saved for filtration and for injection of animals, and the sediment suspended in sodium chlorid solution, so that 1 c c represented the growth from 15 c c of the broth culture Animals of different species were injected, often in series, with doses ranging generally from 1 to 3 c c of the suspension for rabbits and guinea-pigs, and from 0 25 to 1 c c per kilogram of weight for dogs and goats In many experiments smaller doses of the broth culture without centrifugalization were injected In some the bacteria from emulsions of the tonsils and suspensions of the material expressed from the tonsils were directly injected

Part of the material obtained from the patient was plated out and incubated on human blood agar, aerobically and anaerobically Smears and inoculations on blood agar plates were made as a routine of the broth cultures and suspensions at the time of injection In most instances the bacteria from the primary culture in the broth were injected These cultures often contained a mixture of bacteria, but usually showed a great preponderance of streptococci and in some instances pure cultures of streptococci While it was the rule to inject the bacteria from the primary cultures in broth, injections were made in some instances of pure cultures from single colonies on blood agar plates or from lesions and blood of animals It is noteworthy how promptly the nonpathogenic or saprophytic bacteria disappear in animals

ELECTIVE LOCALIZATION OF STREPTOCOCCI AND STAPHYLOCOCCI IN THE NERVOUS SYSTEM

Source of Bacteria	Strains	Animals Injected	Appendix	Stomach or Duodenum H	Stomach or Duodenum Ul	Gallbladder	Liver	Pancreas	Intestines	Joints	Endocardium	Pericardium	Myocardium	Muscles	Kidney	Lung	Skin	Teeth	Nerve trunks	Meninges	Spinal cord	Brain	Dorsal roots
Multiple sclerosis	3	31	0	6	3	10	3	3	0	13	3	3	6	29	23	3	0	0	0	23	58	13	0
Sporadic anterior poliomyelitis	1	36	0	17	0	3	6	0	3	8	0	6	3	14	31	0	3	0	19	25	78	14	0
Transverse myelitis	1	21	5	24	19	0	0	0	33	14	14	10	14	24	10	10	5	0	5	50	67	24	0
Neuralgia	4	18	0	6	0	6	6	0	0	11	22	0	6	33	6	33	28	0	28	22	6	0	83
Multiple neuritis	1	19	11	11	5	5	0	0	11	22	5	16	11	27	16	32	0	0	79	0	5	5	0
Myositis and dental neuritis	1	24	0	13	0	8	0	0	0	4	13	0	4	71	13	0	0	50	46	0	0	0	0
Myalgia	12	29	3	10	14	3	3	0	0	48	24	0	28	93	17	3	3	0	7	7	3	3	0
Average incidence of lesions exclusive of specific strains			3	12	6	5	3	0	7	12	12	5	7	27	17	15	6	0	12	13	4	8	0

The particular micro-organism responsible for the lesions in animals when mixtures were injected was determined by demonstrating its presence in the lesions and its absence in normal tissues (and blood) by means of cultures and sections, and by again producing similar lesions on reinjection of the pure culture

In the table is given a summary of the results obtained in animals The figures indicate the percentage incidence of focal lesions in the various organs In a few instances the figures only approximate the actual occurrence of lesions in various organs because they were not looked for in all the animals injected, the pulps of only four to six teeth and approximately three fourths of the spinal roots were examined as a routine for lesions Lesions in the liver, spleen, thyroid, lymph glands, tonsils, tongue, parotid, eyes and reproductive organs occurred so rarely that they are not included in the table In the last line is given the percentage incidence of lesions in various organs exclusive of the specific strains These figures serve as a basis for comparison They correspond in a general way to those given in my previous table [6] The incidence of arthritis, however, is less, while the incidence of myositis is greater The latter is due to the frequent injection of slightly hemolyzing streptococci which commonly localize in muscles

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[6] Rosenow, E C Elective Localization of Streptococci THE JOURNAL A M A Nov 13 1915 p 1687

[7] Gerdine L and Helmholz H F Duodenal Ulcer in Infancy an Infectious Disease Am. Jour Dis Child 1915 x 397

[8] Hardt L L J The Secretion of Gastric Juice in Cases of Gastric and Duodenal Ulcers Am Jour Physiol 1916 xl 314

[9] Moody Personal communication to the author

[10] Irons E. E. Brown E V L. and Nadler W H The Localization of Streptococci in the Eye A Study of Experimental Iridocyclitis in Rabbits Jour Infect. Dis 1916 xviii 315 The apparent inability of some to corroborate these and the results on the transmutation work appear explainable as due to differences in technic and differences in the character of strains studied

Lesions of the spinal cord, usually patchy in character, were observed in 58 per cent of thirty-one animals injected with the bacteria from the tonsils or infected teeth in three cases of multiple sclerosis In one of these the lesions appeared to be due to a staphylococcus, in the other two, to a green-producing streptococcus Markedly increased reflexes, ataxia and paraplegia were noted during life in some of the animals None became paralyzed The duration of symptoms in the patients ranged from three to eight years In two additional cases little evidence of local infection was found and the cultures failed to produce lesions in the spinal cord

Lesions of the spinal cord, consisting of numerous hemorrhages, especially in the anterior horns in the cervical region, were noted in 78 per cent of thirty-six animals injected with the staphylococcus from the tonsil in a typical case of sporadic anterior poliomyelitis Many of these developed partial or complete paralysis, more marked in the anterior extremities, both after intravenous and intracerebral injection of pure cultures and of emulsions of diseased cords Several dogs showed marked improvement in motive power, and some obtained a complete restoration of movement The lesions in the cord are quite different from those in epidemic anterior poliomyelitis

Lesions of the meninges and spinal cord occurred in 50 per cent and 66 per cent of twenty-one animals injected with the bacteria as isolated from the pyorrheal pockets and tonsils in a case of transverse myelitis with paralysis of the lower extremities Partial or complete paralysis, which began in the hind extremities, developed in many of these animals The lesions of the cord consisted chiefly of hemorrhages both in the gray and white matter and of leukocytic infiltration in the meninges and surrounding the blood vessels

The occurrence of the two types of paralysis, following injection of the bacteria from these two cases, was a striking picture It was difficult, and in some instances impossible, to demonstrate bacteria in the areas of hemorrhage showing little or no leukocytic infiltration in the substance of the cord They appeared to be infarctions from partial or complete thrombosis of the small blood vessels remote from the area of hemorrhage This was true alike following injections in multiple sclerosis, anterior poliomyelitis and transverse myelitis The bacteria were found in large numbers in the areas of infiltration in the meninges and surrounding blood vessels in transverse myelitis These findings are in accord with the fact that bacteria are rarely findable in acute myelitis in man, and hence the lesions are thought to be toxic in origin or due to filterable viruses

Lesions in or about one or more of the posterior roots occurred in 83 per cent of eighteen animals following injection of streptococci from cases of brachial, intercostal and postherpetic neuralgia The occurrence of neuritis in 28 per cent of these animals is noteworthy This and the high incidence of lesions in the skin, 28 per cent (chiefly herpes), occurred in animals injected with relatively large doses As far as can be determined this is the first experimental demonstration of the probable nature of this form of neuralgia

Lesions of the peripheral nerves occurred in 79 per cent of the nineteen animals injected with the pneumococcus obtained on two occasions from multiple neuritis In one rabbit typical wrist-drop developed The animals seemed to be in pain The lesions consisted of localized hemorrhages, edema and leukocytic infiltration, in which often many diplococci were found The localization of the slightly hemolyzing streptococcus isolated from the dead pulp of a tooth and excised muscle from the neck in a case of myositis and dental neuritis was unique 71 per cent of the twenty-four animals injected showed myositis, 50 per cent dental pulpitis, and 46 per cent neuritis, chiefly of the dental nerves

Lesions in or about the joints occurred in 48 per cent of the twenty-nine animals injected, in the myocardium in 28 per cent, and in the muscles in 93 per cent, following injection of the cultures (all containing slightly hemolyzing streptococci) from the twelve cases of "myalgia" (cases of fibrositis or mild myositis, with or without periarthritis) These were included in this table to show the contrast in distribution of lesions and because in some cases it appeared that some of the pain was due to mild neuritis

It must not be supposed that the lesions observed were slight or temporary, that they were always the result of the injection of large doses (even the small amount of exudate expressed from tonsils when directly injected was sufficient to produce the lesions in some instances), or that they were usually a part of a generalized fatal infection (62 per cent of the animals recovered and were chloroformed for examination) Localizations strikingly like those in the patients were obtained in many animals of different species with the bacteria as isolated, but not with the same strains after cultivation for a time or after a number successive animal passages In those strains in which the elective property was marked the characteristic localization occurred in nearly all the animals injected intravenously and in a high percentage of those injected intraperitoneally Numerous strains from other sources and the filtrate of the broth cultures of the strains as isolated have failed to cause similar lesions These and other facts preclude the possibility that the lesions in the animals were from spontaneous or accidental causes

The conclusion seems warranted that the lesions in the patients studied were due to hematogenous infection from a focal source by the bacteria isolated The improvement in symptoms following removal of foci of infection which were proved to harbor bacteria with peculiar localizing powers in multiple sclerosis, transverse myelitis, several cases of persistent neuralgia (although not in others), and in the case of dental neuritis and myositis speaks in favor of this view The results emphasize the importance of thorough search for, and removal, if possible, of foci of infection in diseases of the nervous system In the light of these results and much clinical evidences, as emphasized especially by Billings, a chronic focus of infection which cannot heal for mechanical reasons, often teeming with bacteria, must be considered as a test tube with a permeable wall embedded in the tissues, which, as I have already pointed out,[6] affords not only abundant opportunity for the entrance of bacteria and their products, but also the conditions favoring the acquisition of various infective powers by the bacteria The demonstrated presence over a long period of time in foci of infection (particularly in chronic diseases) of bacteria with the same elective localizing powers suggests that the tendency to recurrences of a certain type of disease in the same patient and even hereditary tendencies may be due in part to the peculiar environment furnished by the individual which may favor the acquisition and maintenance by the bacteria of a particular infecting power

Too much benefit should not be expected from the removal of evident foci of infection, because a similar condition may be present in inaccessible foci and in others too small to be detected Moreover, recovery may be made difficult by local tissue sensitivity or peculiar mechanical conditions, and living bacteria in a metastatic lesion may continue the process independently of the focal source In the case of dental neuritis and myositis the focus was found in the pulp of a dead molar tooth, no demonstrable lesions being found in the jaw The removal of the tooth, while helpful, was not followed by the prompt disappearance of the symptoms Streptococci demonstrated in sections of the excised muscle from the neck were proved alive ten days after a typical recurrent attack of spasm and pain[11]

ABSTRACT OF DISCUSSION

Dr Frank Billings, Chicago When one discusses the subject of localized infection he ought to know the particulars of it and discuss it from the side of an infectious organism and all that relates to it One should also discuss the host and the reaction of the body This, however, is neither the time nor the place The organisms infecting the body invade us living as parasites harmful or harmless to the host The organisms may act directly on certain tissues, lodge in them, multiply and produce reactions which are not always the same We have recognized that the pathogenic micro-organism may possess a tropism for tissues, but have not appreciated the importance of this principle of bacteriology One may conceive that the agents infecting some particular tissue like a joint may gain tropism for that kind of tissue, and if isolated and injected into an animal the same tissues will be infected in the injected animal The work that Dr Rosenow has done is proof that tropism may be gained in the infected tissues The *Streptococcus viridans* may have an elective affinity for the heart and at another time an affinity for muscles or joints There are many things we cannot explain There are certain biochemical changes that occur due to reactions of the organism in the tissues The phenomenal work that Dr Rosenow and others have done has been due to the fact that they were able to come in contact with the patients They have been able to be at the bedside and to use the patients as material The first work done by Dr Rosenow was in the wards of the Presbyterian Hospital We never removed tissues from a patient without his consent or request In chronic conditions we may find many parasitic organisms in the tissues They were disregarded and only strains were used that were proved to be pathogenic Finally, we have come to know that many conditions formerly thought to be noninfectious are infectious

Dr Ernest Zueblin Baltimore Dr Rosenow s demonstration of the tropism of muscular tissue against certain bacterial strains may give us an explanation why we so frequently find the muscular system affected For the clinician the physician interested in dispensary work and the routine practitioner the frequency of chronic myositides, of interstitial infiltrations and nodosities encountered in the larger muscles (neck etc) is striking Although among Swedish and Dutch physicians this type of muscular rheumatism is well known and successfully treated among the general practitioner such findings obtained only by a careful physical examination are too often neglected We all are aware of the tedious task to improve these chronic ailments, which left alone get worse and result in permanent injury Any new experimental data in the line of Dr Rosenow's work, showing an affinity of bacteria toward the muscular elements, must be followed with great interest as a possible way for better diagnosis, prognosis and treatment of such ill defined cases From the experimental standpoint I would like to ask Dr Rosenow if there is any possibility to increase that tropic affinity of the bacteria by the addition of certain organ extracts to the culture media, and if such a thing is possible what percentage of organ extract is permissible for obtaining the best culture result

Dr Samuel James Meltzer, New York Dr Rosenow's observations are certainly very striking and probably practically important They are so striking that a great many bacteriologists and clinicians look at them with some suspicion But Dr Rosenow is in the fortunate position that the minority which believes in his results is composed of men who had the chance to see his experiments The question is how can it be explained that infections, localized in various organs, could be specifically produced by one and the same type of an organism, namely, by the streptococcus Various explanations occurred to my mind In the first place, that streptococci which may look alike and which may give even certain similar reactions, may nevertheless be fundamentally different There are a great variety of species or sub-species among the streptococci, we only do not yet possess the means of recognizing their individualities That would mean that, for instance, infections of the appendix and gallbladder, etc , are really produced by definitely different sub-species of streptococci A second explanation may be the assumption that the streptococci are merely constant companions of certain specific organisms, not yet known to us, the discovery of the ameba as the cause of pyorrhea alveolaris is an illustration There is a third possible explanation It is based on the conception of the *locus minoris resistentiae,* the importance of which in pathology was impressed on me some twenty years ago in experiments carried out by Dr Cheesman and myself We found then that the intravenous injection of organisms, streptococci, for instance had hardly any influence on the experimental animals However, we could find at any place in the animal body the specific organisms in pure culture when we, previous to the injection, caused a slight lesion in that place We thus localized these organisms in circumscript places the liver, the parietal peritoneum the uterine mucosa, etc Now the *locus minoris resistentiae* may be considered from two points of view One is that locality possesses a diminished resistance to *all* parasitic organisms, and the other is that this locality is less resistant to an organism which acquired a specific virulence for this tissue It is the latter form of *locus minoris resistentiae* which I wish to apply to the observations of Dr Rosenow It is admissible to assume that specific organisms which are residing for a longer period in a certain tissue reduce considerably the natural resistance of this tissue to the virulence of that specific organism or rather increase the virulence of that organism to the specific tissue When such an organism is now injected into a normal animal that organism will show a greater virulence to the corresponding tissue in the new animal It is for instance thus possible that a strain of streptococci which was obtained from a case of appendicitis acquired a higher virulence specifically to the tissues of the appendix The intravenous injection of such an organism may, therefore produce appendicitis and no lesions in any other organisms

Dr G Canby Robinson St Louis The elective localization of bacteria is an interesting conception and has a very important bearing on the question of etiology of disease Many of the conditions that have been discussed by Dr Rosenow have a nonspecific etiology, the localization of the infection rather than the type of organism being responsible for the disease produced But this theory should not be made to play a role in the causation of diseases resulting from specific infections Surely Dr Rosenow does not believe, for instance that he has produced true acute anterior poliomyelitis in animals by injecting a streptococcus or staphylococcus which he obtained from the tonsils of a patient with this disease It is fair to claim that the organisms infected, localized in the cord and meninges of the animals, but this localization does not constitute poliomyelitis as the term has been adopted to apply to a definite, clear cut clinical entity, caused by a filterable virus quite different from bacteria of the ordinary type

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[11] The details of the clinical histories and the experiments a review of the literature and a more detailed discussion of the significance of the findings are reserved for separate papers

Dr **Henry Asbury Christian**, Boston In analyzing the remarkable work of Dr Rosenow we can make something like this subdivision There are groups of cases with local lesions from which local lesion organisms can be isolated and when injected into animals these organisms localize in them at the same place from which they were isolated in the patient From the appendix, in appendicitis, organisms may be isolated and if injected into animals they localize in animals at the same place in a predominating number of cases It seems to be like the homing instinct of pigeons Then there is another group of cases which present this difference They are cases in which the organism is isolated from a focus that is not a part of the disease The organisms isolated from such a focus if injected into animals localize themselves not in tissues which are similar to the tissues from which they were isolated but in tissues corresponding to the tissues involved in the general disease This applies in Dr Rosenow's case of multiple sclerosis, a disease of the central nervous system Here the organisms are isolated from the tonsil but in animals localize in the central nervous system I should like Dr Rosenow to give us some idea why it is that an organism isolated from the teeth or tonsil will localize in the central nervous system rather than in the tonsil or teeth These are two groups of cases which cannot be explained directly in the same way In the second group the organism maintains the quality of localizing when injected into animals in certain tissues although it has not been localized in the body of the patient in that particular place In cases of multiple sclerosis the organism must have been long present in the patient's tonsil without losing its power of localizing in the central nervous system In conclusion I would like to express my appreciation of the tremendous amount of experimental work that Dr Rosenow has done and which has thrown much light on this subject

Dr **Edward C Rosenow**, Rochester, Minn The importance of injury from accidental causes as a determining factor in localization of bacteria as raised by Dr Meltzer, is fully appreciated The nature of the lesions observed, their location, and the incidence of their occurrence, as well as the care and individual caging of animals, precludes the possibility that injury from accidental causes had anything to do with the localization of the bacteria in these experiments The "warning note" raised by Dr Robinson is, I feel, superfluous, but it gives me opportunity to emphasize that the case of anterior poliomyelitis was not of the epidemic type, but sporadic anterior poliomyelitis, and that the elective property or peculiar tropic condition of the bacteria is, of course, only one of a number of factors determining their localization Dr Christian's questions are much to the point I have repeatedly emphasized the fact that the bacteria having elective properties in the diseases which I have studied, do not usually produce inflammation of tonsils sufficient to cause subjective symptoms of tonsillitis, and that when the diseases studied occur in association with tonsillitis, they occur commonly some time after the height of the attack The pus or other exudate containing the bacteria having elective affinity is not from actively inflamed tonsils, but usually from small atrophic tonsils with deep pockets which cannot heal for mechanical reasons, and which are virtually test tubes with a permeable wall The bacteria in these tonsils are virtually outside the tonsil and, hence, should not be expected to localize in the tonsils of animals It is impossible to say definitely at present on what factors the acquirement of elective properties depends Chronic foci of infection, such as the above, however, appear to furnish conditions favorable not only for the entrance of bacteria, but for them to acquire varying infecting powers It was thought more important to determine first to what extent localization of bacteria depended on peculiar properties of the microorganisms at hand, and then to study more closely the exact mechanism involved This study is now in progress While other factors, such as varying degrees of resistance and other peculiarities in animals normally present or produced experimentally, are of importance in determining localization of bacteria, it appears from this study, in which due regard is paid to the question of oxygen pressure, the proper nutrition and the early injection of animals, that the diseases studied are due in some instances to common pathogens, but which have acquired peculiar infecting powers

POLIOMYELITIS

WITH SOME OBSERVATIONS ON THIRTY CASES

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As long ago as 1865, Taylor,[1] in referring to infantile paralysis, said, "There seems to be no doubt that this disease is much more frequent now and is rapidly increasing" It was not until 1881, however, that the first epidemic was described This was reported by Bergenholtz, and consisted of eighteen cases in northern Sweden

Since the Vermont[2] epidemic of 1894, there have been at least fourteen epidemics of poliomyelitis carefully recorded in different parts of the United States These have varied in both size and intensity, and have been scattered across the country from Massachusetts[3] to California Previous to the present epidemic, the largest number of cases was observed in the Swedish epidemic (1,031 cases) of 1905, and in the Pennsylvania epidemic (1,000 cases) of 1910 It is easily seen, therefore, that the 1916 epidemic, which has already exceeded 5,000 cases in New York with no indication of abatement, has long since dwarfed all previous records for this crippling and often fatal disease

Not until Wickman's[4] report of the Swedish epidemic of 1905 was it shown that acute poliomyelitis is conveyed from person to person Wickman further indicated that healthy persons may act as carriers Nevertheless, with our present knowledge, it is out of the question to identify all carriers, if they exist, in fact, we do extremely well if we are able to recognize abortive cases when they occur

We come, then, to what is the most difficult problem concerning this disease, namely, appropriate and successful means for checking its spread Since it is generally conceded that poliomyelitis is not, under ordinary conditions, spread by water, milk or food, and that, in most instances, it is conveyed by direct contact, it would seem that the sole means for adequate control is by compulsory hospitalization at the earliest possible moment We believe that through the prompt and energetic measures along this line adopted by Chicago's commissioner of health, another epidemic of this dire malady may have been averted

Since poliomyelitis spreads along the lines of travel, all incoming passengers from the East are inspected for evidence of this disease Physicians and any others having knowledge of a known case are required to report it to the commissioner of health, and all doubtful or suspected cases are investigated by physicians of the city health department When the diagnosis is definitely established, the patient is removed to the hospital by a health department ambulance

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[1] Taylor Charles Fayette Infantile Paralysis Philadelphia, J B Lippincott Company, Philadelphia, 1867

[2] Caverly, C S History of an Epidemic of Acute Anterior Poliomyelitis, Tr Vermont State Med Soc, 1894, p 240

[3] Infantile Paralysis in Massachusetts during 1910, Month Bull Massachusetts State Board of Health, 1911

[4] Wickman, Ivan Acute Poliomyelitis, Nervous and Mental Disease Monograph Series, No 16, New York, 1913

The cases in our series, as presented in Table 1, were with a few exceptions of a mild type Cases 19 and 25 we classed as of the encephalic variety, all the rest being spinal It will be noted that the youngest patient was 5 months of age and the eldest 11 years, and that there were but two patients more than 5 years of age, 86⅔ per cent of the patients were under 5 years of age The sexes were almost equally divided, there being fourteen boys and sixteen girls One point particularly observed by us was the fact that practically all the children were fair haired A few had light brown hair, but they usually had blue eyes There was really but one dark complexioned child in our series, and for some time we regarded that one as a doubtful case It would be interesting to know whether poliomyelitis shows some special predilection for those of fair complexion or whether this was a mere incident in our series Its prevalence in Sweden and Norway would further make us think that the fair haired may show some special predisposition

As our patients were brought to the hospital by the department of health ambulances without an accompanying relative, it was very difficult and often impossible to gain any history of the onset other than the date Consequently we were unable to obtain in practically all instances even a theoretical source of infection We have been indirectly informed, however, that in nearly all cases there was some history of injury In some of the latter instances it was evident that the injury, usually a fall, occurred at the time of onset of the paralysis In a series of 150 cases, Lovett[5] recorded thirty-four instances in which there was the history of a fall

There was no retention of urine in any of our cases, nor was there any bowel difficulty Neither was photophobia observed in any instance Drowsiness, however, was a common symptom in the early stage As usual, in the cases of those attacked by poliomyelitis, our patients were, with few exceptions, not only well nourished, but exceptionally robust infants and children

In determining the mode of treatment of acute poliomyelitis, the contagious nature of the disease is necessarily a matter of prime importance Nevertheless, the degree to which this disease is contagious is a very uncertain quantity Based on Frost's[6] estimates, the contagiousness of this disease is one-third that of scarlet fever and about one-half that of diphtheria In reaching this conclusion, however, Frost includes the clinically doubtful cases

Again referring to Table 1, it will be noted that there were known to be thirty-six children of various ages who were closely associated with the patients in the acute stage, and yet thus far there have been no two cases in any one family However, there was one instance of two cousins being admitted to the hospital Nevertheless they did not live in the same house, nor were their residences nearby In fact, they had not seen one another "for more than a month" previous to their illness Furthermore, while we have a definite record of only thirty-six contacts among children, there were probably at least double that number, including all ages of all the families In this connection, it may be said, Wickman believes that abortive cases are commonly overlooked as carriers

Our routine hospital treatment consists of a warm bath on admission, cleansing eyes and nose with a 20 per cent argyrol solution, and putting the patient to

TABLE 1—OUTLINE OF CASES*

Case Number	Type	Age, Years	Sex	Complexion	Nourishment	Date of Onset	Date of Admission	Other Children in Family	Other Cases in Family	History of Injury	Large Tonsils	Paralysis					Pain	Tenderness	Max Temp in Hospital	Rigidity of Neck	Pain on Flexion of Spine
												Right Arm	Right Leg	Left Arm	Left Leg	Face					
1	S	1½	F	F	G	6/28	7/3		0		0	0	+	0	0	0	0	0	99 6	0	0
2	S	3½	M	F	G	7/5	7/10		0		0	0	Pa	0	+	0	++	++	99 6	+	+
3	S	2	F	F	G	6/27	7/10	3	0		0	+	0	Pa	0	0	0	0	100 2	0	0
4	S	3½	M	F+	G+	7/6	7/14		0		0	0	0	0	+	0	+	+	99 4	0	0
5	S	3	M	F	G	7/11	7/18		†		0	0	+	0	0	0	0	0	100 2	0	0
6	S	11	M	F	G+	7/6	7/18	3	†	+	0	0	0	0	+	0	0	0	99 2	0	0
7	S	3½	F	F	G	7/14	7/19		0	+	+	0	0	0	+	0	+	+	99 4	0	+
8	S	2	M	F	P	?	7/20		0		+	0	+	0	0	0	0	0	99 8	0	0
9	S	3½	F	F	G	7/16	7/21		0		0	0	+	0	+	0	+	+	99 6	0	0
10	S	3½	M	F	G	7/15	7/22	6	0		+	0	+	0	0	0	+	+	99 6	0	+
11	S	4½	F	F	G	7/15	7/22	2	0		0	0	Pa	0	+	0	+	+	99.8	+	+
12	S	2½	F	F	F	?	7/23		0		+	0	+	0	+	0	+	0	99	0	0
13	S	2	M	F	G	7/14	7/23	1	0		0	0	0	0	+	0	0	0	99 4	+	0
14	S	6	M	L B	G	7/16	7/23	4	0	+	+	0	0	0	+	0	+	0	98 8	0	0
15	S	5	M	F+	G	7/16	7/24	0	0	0	0	0	+	0	++	0	+	+	99 4	+	++
16	S	2	F	F	G	7/17	7/24		0		+	0	0	0	+	0	0	0	98 2	0	0
17	S	3½	M	F	P	7/4	7/24	3	0		+	0	+	0	0	0	0	0	99 2	0	0
18	S	1½	F	F	F	?	7/24		0		+	0	0	0	+	0	+	+	99	0	0
19	En	5	F	D	G	7/21	7/25	0	0	0	+	0	0	0	+	+	0	0	99 8	0	0
20	S	3½	M	F	F	?	7/25		0	0	+	Pa	+	Pa	0	0	+	+	100	++	++
21	S	1	F	F	G	?	7/25		0		0	0	+	Pa	+	0	+	+	100 2	0	+
22	S	5 mo	F	F	G	7/12	7/26	2	0	0	+	+	+	0	0	0	+	+	99 6	0	+
23	S	1	F	F	G	7/12	7/26		0		+	0	0	0	+	0	+	+	101	0	+
24	S	2¾	F	L B	G	7/19	7/26		0		+	0	0	0	+	0	+	+	101	+	+
25	En	2½	F	L B	F	7/20	7/27		0		+	0	+	0	+	+	+	+	98 6	0	0
26	S	4	M	F	P	7/25	7/28	3	0	0	+	0	+	0	Pa	0	+	+	101 4	+	+
27	S	2	M	F	F	7/21	7/29	3	0	0	+	0	+	0	+	0	+	+	101 4	+	+
28	S	2	M	F	G	?	7/29	0	0	0	+	0	0	0	+	0	+	+	99 4	0	+
29	S	3	F	F	G	7/26	7/30	2	0		+	0	+	0	+	0	+	+	100 8	+	+
30	S	3	F	F	G	7/24	7/30	4	0		+	0	+	0	+	0	+	+	99 8	+	+

* In this table the following abbreviations are employed S spinal En encephalic L B light brown D dark Pa paresis G good P poor † Cousins but not living in same house

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5 Lovett Infantile Paralysis in Massachusetts in 1909 Month Bull Massachusetts State Board of Health June 1910

6 Frost Wade H Epidemiologic Studies of Acute Anterior Poliomyelitis Bull 90 Hyg Lab U S P H S October 1913 p 14

bed A nose and throat culture is also made at this time Heavy stockings are put on and every endeavor made to keep the limbs warm The patient is dressed comfortably, and in most cases bedclothing over the patient is not only unnecessary but undesirable If used, supports should be provided, so that it does not weigh on the toes

TABLE 2—RESULTS OF SPINAL PUNCTURES

Case Number	Pressure*	Clear	Nonne	Fehling's	Cell Count
1	N	+	—	—	20
2	S	+	—	—	20
3	N	+	+	+	30
4	N	T	+	—	12
5	N	+	—	+	16
6	N	+	+	—	12
7	S	+	++	+	98
8	N	+	+	—	14
9	N	+	—	—	8
10	S	+	—	—	6
11	N	+	+	+	36
12	N	+	+	+	46
13	N	+	++	+	67
14	N	+	—	—	36
15					
16	N	+	—	—	14
17	S	+	+	+	28
18	N	+	+	—	3
19	N	+	—	—	12
20					
21	N	+	+	+	8
22					
23	S	+	+	+	15
24	N	+	—	—	4
25	N	+	+	—	30
26	+	+	+	++	18
27	+	+	+	++	14
28	N	+	—	+	12
29	N	+	+	+	23
30	N	+	—	—	15

* Spinal fluid key N, normal, +, increased S, very slight increase, T, turbid

A laxative, usually some form of cascara, is given on admission, and in addition an enema on either the same day or the following morning A light diet is provided for children old enough to partake of it In the case of nursing babies, accommodations for the mothers are arranged for in the hospital Hexamethylenamin was given the first few patients, but was soon discarded, as there is pretty conclusive proof that it is of no benefit after the disease has begun[7]

Table 2 shows the results of the spinal punctures In Cases 15, 20 and 22, so much difficulty was encountered that all further efforts to tap the spinal canal were abandoned As may be seen, we found very few of these cases with an increased pressure This, however, may be explained on the ground that most of these patients had passed the early acute stage The amount of fluid varied from 3 to 10 c c, and was obtained in almost each instance on the same day the white count was made The cell count per cubic centimeter of fluid was also seen to be low in most instances

Where the patient was received early, following lumbar puncture, from 0 5 to 1 c c of 1 1,000 epinephrin chlorid solution was given intraspinally, following the suggestion of Meltzer[8] This was repeated every four to six hours, provided the pulse rate did not exceed 160 In no case, however, did we repeat the dose more than three times

Some patients showed marked improvement in from one-half to one hour following the epinephrin injection On several occasions a patient with a totally paralyzed arm would make a voluntary movement of the arm within an hour after receiving the epinephrin Such marked improvement, however, was seldom permanent, but gradual improvement in some cases seemed to be more rapid Lucas and Osgood[9] have shown that little can be expected of vaccines However, the benefits to be derived from the intraspinal use of horse serum[10] seem promising At the date of writing, we had not made use of the latter method of treatment

We made no use of electricity, and did not institute massage until all acute symptoms had subsided We believe that rest and quiet are the two chief requirements of the patient in the acute stage Ordinarily massage was begun in from two to three weeks from the onset of the disease, according to the severity of the case The patients are kept in bed throughout their stay in the hospital, and on discharge instructions given the parents regarding the necessity for further treatment Among our cases there were but three which showed a tendency to impending deformity through the contraction of muscles Nevertheless, it was too early to expect that which may develop, if proper precautions are not taken, in the months to come Where foot drop is marked, plaster casts should be applied to overcorrect this slightly The cast should later be cut so that it will be removable in order that massage may be applied

Both Ed Muller and Paul Krause[11] state that a leukopenia is present in acute poliomyelitis The latter remarks that "a marked leukopenia is characteristic of anterior poliomyelitis" The blood findings in the cases presented by us do not confirm the foregoing assertion

TABLE 3—LEUKOCYTE COUNTS

Case Number	White Count	Day of Disease
1	11 500	30
2	11 750	5
3	18 000	14
4	11 200	21
5	7 350	16
6	13 000	21
7	10 000	13
8	7 500	10 (?)
9	8 000	11
10	12 700	12
11	11 800	13
12	6 700	7 (?)
13	14 500	13
14	8 000	12
15	16 300	11
16	15 800	10
17	18 600	23
18	11 400	5
19	13 250	5
20	15 900	7 (?)
21	9 800	7 (?)
22	12 600	16
23	13 350	15
24	11 000	8
25	11 000	8
26	14 800	4
27	20 900	7 (?)
28	14 000	7 (?)
29	23 600	3
30	14 300	7

In Table 3 it will be seen that a leukocytosis was almost constant, and that it usually persisted for at least two weeks, and frequently much longer It would seem that the white count should serve as a good index in determining the time to begin active manipulations of the muscles.

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[7] Kelly, E R, Gellhorn, W, and Manning, J B Report of Infantile Paralysis in State of Washington during 1910, Olympia, Washington, 1911, p 18 Römer, Paul H Epidemic Infantile Paralysis, translated by H Ridley Prentice, New York, William Wood & Co, 1913, p 174

[8] Meltzer, S J Symposium on Infantile Paralysis, abstr, The Journal A M A, July 22, 1916, p 314

[9] Lucas and Osgood, quoted by Kelly (Footnote 7), p 145

[10] Sophian, Abraham Specific Treatment of Infantile Paralysis, The Journal A M A Aug 5, 1916, p 427

[11] Krause, Paul Lehrbuch der klinischen Diagnostik innerer Krankheiten, 1913, p 87

During the period of quarantine or hospitalization, all discharges, including bowel movements, must be disinfected Every effort must also be made to see that the surroundings are free from flies or insects of any nature In view of a certain amount of uncertainty in the matter, it is well to be on the lookout for the bedbug as a possible carrier, since Frauenthal[12] affirms that bedbugs have transmitted the disease, and Flexner has shown an instance of this in monkeys

There is at least one other perplexing question in connection with this disease which should be mentioned For how long a time should a case of acute poliomyelitis be quarantined? A few years ago the Paris Academy of Medicine[13] recommended the isolation of convalescents and patients for three months Sawyer,[14] however, showed that while virus was present in the rectal washings sixteen days after the onset of the acute attack, it was nevertheless absent in both nasal and rectal washings thirty-seven days after the onset of the disease Ed Muller believes that the period of isolation should be eight weeks, while in Sweden it is usually three weeks The latter is also said to be the length of quarantine in Pennsylvania In accordance with the regulations of the Illinois State Board of Health, the minimum period of quarantine in Chicago is five weeks

It is interesting to note that in our small series of cases there were no deaths, whereas the mortality among the New York cases is high, apparently exceeding 20 per cent Statistics show the average mortality to be 10 31 per cent , that it is lowest at 5 years and highest at from 21 to 30 years In this connection it is well to remember that while the great majority of acute poliomyelitis cases occur before the age of 5 years, recent statistics tend to indicate that the number of cases over 5 years is gradually increasing It must also be borne in mind that no age may be said to be exempt

Notwithstanding the dire results which so frequently follow an attack of poliomyelitis, the percentage of complete recoveries is often high Statistics show a variation in this respect all the way from 15 to 50 per cent

CONCLUSIONS

1 There is still some unknown agency responsible for the transmission of poliomyelitis Not every case is acquired through direct contact or by means of a human carrier

2 A leukopenia is not characteristic of poliomyelitis, since a leukocytosis was present in almost every case observed by us

3 In order to control an epidemic or an impending epidemic isolation by means of compulsory hospitalization will give the best results

4 An isolation period of three weeks from the date of attack is probably sufficient

25 East Washington Street

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[12] Frauenthal H W and Manning J V Infantile Paralysis and Modern Methods of Treatment Philadelphia F A Davis Company, 1914 p 6

[13] Forchheimer Therapeusis of Internal Diseases iv 257 New York D Appleton & Co 1914

[14] Sawyer W A An Epidemiological Study of Poliomyelitis Am Jour Trop Dis and Prev Med September 1915 p 164

Public Nutrition—The nutrition of the great mass of the people is a question of the highest importance, deserving far more attention than it has hitherto received All the great countries ought to have a central authority, which should concern itself exclusively with the far-reaching questions of the well-being of the people—Rubner

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MUNICIPAL CONTROL OF INFANTILE PARALYSIS

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NEW YORK

Municipal control of epidemics of infantile paralysis is a most difficult problem In order to obtain any results we must utilize our knowledge to the utmost, measures should be comprehensive, definite and rigid

Infantile paralysis is produced by a minute infectious agent which cannot be isolated, cultivated or identified by the usual bacteriologic method The virus is present in the secretions of the nose, throat and intestines of the sick, and has been found in the noses and throats of healthy contacts, who may remain healthy carriers

The virus can be carried on the surface and in the intestines of the common house fly It is probable that other insects, vermin and domestic animals may similarly carry and disseminate the virus

Accurate data have not been obtained on the duration of living virus in the nose and throat of the sick or in healthy contacts In monkeys the virus has been found in the mucous membrane of the nose and throat as long as six months after the occurrence of paralysis It is very probable that carriers of this disease, as in meningococcic meningitis, group themselves into the larger group of temporary transient carriers, and a smaller group of permanent carriers or carriers over a long period of time

The virus has been found in the dust of rooms containing patients with infantile paralysis It is unusually resistant to drying, summer temperatures and the action of 0 5 per cent phenol (carbolic acid) and glycerin

The virus may therefore be disseminated by the sick, by healthy carriers, by the fly, insects or other animal carriers, and through the agency of dust, dirt, food, garbage or refuse which has become accidentally contaminated with the virus This can readily occur through the coughing, sneezing, or promiscuous spitting of carriers

Studies of the present and previous epidemics indicate that the disease is transmitted along the route of human travel and intercourse, that the disease is transmitted principally through the agency of healthy carriers

EPIDEMIOLOGY

Two factors are necessary for the occurrence of infectious disease a highly virulent infectious agent and a susceptible individual Infantile paralysis is always sporadic in this country It has been suggested that the virus fluctuates in virulence and may suddenly assume excessively virulent properties For an epidemic of any disease to occur, there must be general lowered resistance to the disease In time of epidemic, on account of general exposure, it is probable that a widespread and high immunity develops In periods free from epidemic, this immunity probably gradually dies out

The introduction of a highly virulent virus during a period of general lowered resistance can explain epidemics, recurring in cyclic manner

General and widespread nasopharyngeal catarrh would offer a ready means of widespread production of carriers and dissemination of an infectious agent The past winter in this country was unusually severe, and epidemics of grip were general and alarming, few persons escaped a few days' disability from nasopharyngeal catarrh

It is obvious that infantile paralysis is a highly contagious disease, with an infectious agent easily disseminated Unlike the other contagious diseases, as scarlet fever, measles and diphtheria, easily controlled by suitable quarantine, this disease is extremely difficult to control Few who are exposed actually develop the disease This epidemic teaches that sporadic cases at all times should have the most rigid quarantine of the sick and the healthy contacts

With the outbreak of a large, apparently uncontrollable epidemic of infantile paralysis in New York City, there was ample cause for alarm in neighboring cities in close business relationship with New York The immediate outbreak of cases in these cities, and large epidemics in some, indicated that the most rigorous methods would have to be immediately employed to prevent epidemics in these cities An especially serious problem was the flocking of thousands of children from New York to the surrounding country

PREVENTIVE MEASURES

The preventive campaign as planned and rigidly carried out in Bridgeport may be classified as follows

1 Quarantine of the sick and healthy contacts

2 Exclusion of probable carriers from New York and adjoining cities in which the disease was epidemic

3 Establishment of a special central hospital to which was enforced compulsory removal of all patients with infantile paralysis

4 Organization of a special medical "poliomyelitis diagnosis squad"

5 Repeated circularization of the physicians, calling attention to abortive cases and the preparalytic stage of the disease

6 Mobilization and enlargement of all the sanitary forces covering the street cleaning department, garbage department, police and fire departments, regular sanitary inspectors, and the staff of nurses

1 *Quarantine* —Quarantine of the sick should be rigid, and, until we learn more about the disease, should cover the probable period of the epidemic, about eight weeks Rigid quarantine means removal of the patients from their homes except in special but rare instances in which quarantine can be carried out at home All patients were kept at the poliomyelitis hospital for a period of eight weeks

Families in which the disease occurred were quarantined for ten days In every instance an officer was stationed at the outside door during the entire period of the quarantine Each house was fumigated as soon as the patient was removed A quarantine officer visited the premises twice daily, watched the other children, and issued circulars and personal instructions as to renovation and cleaning up of the houses All were advised to use a spray of salt solution and also 1 per cent peroxid several times daily for the nose and throat

When cases occurred in tenement houses, all the children in the tenement were quarantined, but the wage earners in the family outside of the first quarantine were allowed to come and go Special intensive efforts of thorough sanitation and inspection were used for the quarantined tenement houses and those near by The streets were carefully cleaned, flushed or oiled Instructions were issued to avoid raising dust in sweeping houses, sidewalks or streets Accumulation of garbage was avoided

Quarantined houses were placarded, as was the street in which the quarantined houses were situated

2 *Exclusion of Probable Carriers* —The disease is transmitted along the course of human travel and intercourse Children are principally affected The number of healthy carriers are probably far in excess of the sick There is no practical way of determining these carriers The safe way was to exclude all children under 10 from Bridgeport who came from cities in which this disease was actively epidemic There are so many indirect ways of contact that it is certainly an unsafe procedure to depend on a health certificate issued by a private physician or a health department, since neither could be at all familiar in most cases with the daily life of the applicant We found that a number of those wishing to come to the city of Bridgeport gave untrue stories of their previous address and destination A number of automobile parties were caught coming in during the very early hours of the morning on unfrequented highways These evasions occurred in most instances among those who had no particular business in Bridgeport

All railroads, boats and roads were carefully patrolled

3 *Establishment of a Special Poliomyelitis Hospital* —It was deemed wise to remove all patients from their homes A specially organized trained medical staff as well as hospital was provided for the care of the patients As a general rule there was little objection to the removal of patients from their homes, when the parents learned that special attention and care had been provided for their children

4 *Organization of Poliomyelitis Diagnostic Squad* —Early diagnosis and diagnosis of abortive cases are most important The medical society was asked to appoint a diagnostic committee especially fitted for the work Immediately on the report of cases to the health department, a member of the diagnostic committee was notified and immediately visited the patient Many cases were diagnosed early in this way, and abortive cases were caught which otherwise might have been overlooked for a time at least

6 *Mobilization of Sanitary Forces* —A cooperative mobilization of all the sanitary forces was secured This enabled a thorough intensive cleaning up of the city, of the streets, the homes, the people, places of amusement, restaurants, hotels and boarding houses

A campaign of education of the public was instituted through the press, from the pulpit, on the screen, by circularization, and by talks from civic bodies A house to house canvass was made in which parents were instructed in the principles of hygiene and sanitation

Especial attention was given to prevent the collection of children anywhere in crowds By health department order they were excluded from Sunday school, public play grounds, theaters, stores, picnics, circuses, from street cars at certain times of the day, and from boats The children's department of the public library was closed, public band concerts were discontinued, and public dumps were carefully patrolled Soda fountains were rigidly checked up

A fly swatting campaign was instituted and the anti-spitting law (including the streets) was rigidly enforced

CONCLUSION

Every force, medical, sanitary and civic, must be mobilized to meet this disease

Are preventive measures of material help? It is of course impossible except by comparison to judge the number of cases that might have occurred had not active measures been instituted The relatively larger number of cases in other cities indicates so far that active measures are important

GASTRO-INTESTINAL FINDINGS IN ACNE VULGARIS

ESPECIALLY FLUOROSCOPIC*

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It is generally recognized that the acne bacillus is the direct cause of acne vulgaris, yet there are a number of associated conditions which the patients often show that are regarded as predisposing factors Among these may be mentioned puberty, anemia, and utero-ovarian and gastro-intestinal disorders Varying degrees of emphasis have been placed on these factors in their relation to acne by different authors and investigators Probably those which have received the most attention are the gastro-intestinal affections, but the observations have been mostly of a clinical nature

One of the earliest investigators in this line was Barthelemey,[1] who, in 169 cases of acne, found clapotage in all but four cases According to this author acne does not exist without dilatation of the stomach

Mitour[2] examined thirteen patients with acne, seven of whom had dyspepsia, and the gastric contents showed an increase in the acids of fermentation He defined the dyspepsia which is present in acne as that type which is characterized by distention and fermentation of the stomach accompanied by considerable variation in the gastric hydrochloric acid content

Bach[3] examined 128 cases of acne in women for hemoglobin content of the blood, female disorders, and gastro-intestinal derangements Only the gastro-intestinal disorders showed a higher percentage in the acne patients than in the control of cases, of which there were sixty-two

White[4] found digestive disturbances in 59 per cent of 438 cases of skin diseases The percentage, however, in the acne cases alone was only 55, which was somewhat lower than the general average

Other lines of investigation, as those of Kapp,[5] who found in thirty-three cases of acne the presence of indol in the urines of all the patients, have suggested that there is a toxic protein decomposition in many cases of acne which is most likely dependent on intestinal stasis

At the suggestion of Dr Gilchrist, we thought that more definite information might be obtained as to the nature of the gastro-intestinal disorders accompanying acne, by fluoroscopy of the gastro-intestinal tracts of acne patients This method of investigation, which as far as we know has not been carried out before in this disease, would be of especial value in determining if an anatomic basis existed in these patients which would permit protein decomposition and toxic absorption Besides the fluoroscopy of the gastro-intestinal tracts, the patients also received test meals, and analysis of the gastric contents was made

METHOD

1 *Gastric Analysis*—(*a*) Fasting Stomach Patients were given 6 tablespoonfuls of boiled rice at 9 30 p m Nothing was taken by mouth after this The contents of the stomach were removed at 9 o'clock on the following morning and examined for amount, presence of free hydrochloric acid and occurrence of rice retention as evidenced by Hausmann's test and microscopic examination after staining for starch with iodin

(*b*) Test Breakfast After removal of the contents of the fasting stomach the patients were given two small slices of bread and about 250 c c of water This was removed one hour later The total and free acidity were titrated and expressed in cubic centimeters of tenth normal sodium hydroxid per hundred c c of the gastric fluid removed

2 *Fluoroscopic Examination*—Patients were given 1 ounce of bismuth subcarbonate in a glass of water at 5 p m on the day prior to examination Eighteen hours later a second dose of the same amount was given just before the patients were examined by the fluoroscope All the patients were examined in the upright position

DEFINITIONS

1 Normal gastric acidity Total acidity, from 40 to 60, free acidity, from 20 to 40

2 Retention The presence of rice granules in the contents of the fasting stomach denotes retention When distinguishable to the naked eye, as shown by Hausmann's test, it denotes a greater degree of retention than when only apparent after microscopic examination

3 Secretion Any amount of fluid above 25 c c obtained from the fasting stomach was considered abnormal

4 Position of the stomach Ptosis was considered to be present only when the lower level of the stomach was below the level of the crest of the ilium

5 Position of the colon Ptosis of the colon was considered to be present when it lay below the level of the crest of the ilium When the transverse colon lay on the floor of the pelvis, the maximum grade of ptosis was considered to be present

All of the material was taken from the skin clinic and was not selected The following thirty cases were examined in the gastro-intestinal department under the supervision of Dr Brown

CASE RECORDS

Case 1—Boy, aged 15 Acne medium, duration six months Has had pain in stomach for the past two or three years after meals Constipated (1) Gastric examination Fasting stomach 25 c.c., free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative

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* From the dermatologic and gastro-intestinal departments of the Johns Hopkins University

Read before the Section on Dermatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Barthelemey Arch gen de med 1889

[2] Mitour Etude sur la nature et le traitement de la dyspepsie accompagnee d acne These de Paris 1896

[3] Bach Klin therap Wchnschr 1907 Nos 35 36 37

[4] White Boston Med and Surg Jour 1907 vii 225

[5] Kapp Therap Monatsh 1907

Test breakfast, 70 c c , free hydrochloric acid, 10, total acid, 41 (2) Roentgen examination Stomach large and atonic Cecal stasis and prolapse of the transverse colon

Summary—Hypochlorhydria Ptosis and atony of the stomach Ptosis of the colon Cecal stasis

Case 2—Girl, aged 17 Acne mild, duration six months No history of gastric disturbances Bowels regular (1) Gastric examination Fasting stomach, 40 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 130 c c , free hydrocloric acid, 36, total acid, 56 (2) Roentgen examination Stomach in good position, slightly atonic Intestines normal

Summary—Practically normal findings (except slight gastric atony)

Case 3—Negro woman, aged 30 Acne medium, duration five or six years Patient often has a tight feeling in the stomach and belches sour food after meals Bowels constipated (1) Gastric examination Fasting stomach, 20 c c , Hausmann's test positive Microscopic examination Starch positive Free hydrochloric acid present Test breakfast, 80 c c , free hydrochloric acid 27, total acid, 44 (2) Roentgen examination Stomach high Slight prepyloric bulging Motor function normal Prolapse of the hepatic flexure On deep inspiration prepyloric region pulled out, suggesting loose lower right quadrant adhesions

Summary—Spastic pylorus with slight retention, due to a reflex spasm from right lower quadrant adhesions Prolapse of hepatic flexure

Case 4—Girl, aged 20 Acne medium, duration six years Patient often belches sour food after meals Bowels constipated (1) Gastric examination Fasting stomach, 55 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 20 c c , free hydrochloric acid, 4, total acid, 24 (2) Roentgen examination Stomach dilated, three fingers' breadths below crest of the ilium Congenitally fixed duodenum Sluggish peristalsis

Summary—Gastric atony and stasis Hypochlorhydria

Case 5—Girl, aged 18 Acne medium, duration two years Often has hiccups and a sour taste after meals Bowels regular (1) Gastric examination Fasting stomach, 45 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 77 c c , free hydrochloric acid, 40, total acid, 72 (2) Roentgen examination Stomach just below crest of ilium Normal size Hyperperistalsis and motility Prepyloric bulging Moderate prolapse of hepatic flexure which is pulled over to pyloric region, then drops down to the left iliac fossa, thence irregularly up to the splenic flexure, which is in good position

Summary—Hyperacidity and slight hypersecretion Hyperperistalsis and motility Suggests irritative lesion in the pyloric region, possibly duodenal ulcer Pelvic adhesions

Case 6—Boy, aged 15 years Acne mild, duration two months No gastric symptoms Bowels regular (1) Gastric examination Fasting stomach, 84 c c , free hydrochloric acid present, Hausmann's test positive Microscopic examination Starch positive Test breakfast, 100 c c , free hydrochloric acid, 23, total acid, 37 (2) Roentgen examination Stomach very large, three fingers' breadths below crest of ilium Markedly increased peristalsis, bismuth going over rapidly into duodenum Some prepyloric bulging Prolapse of the transverse colon

Summary—Irritative lesion in pyloric region with gastric retention and ptosis of transverse colon

Case 7—Boy, aged 19 Acne medium, duration one year For the past three months has had colicky pains in the stomach with no reference to meals Has been constipated for the last three months (1) Gastric examination Fasting stomach, 16 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 23 c c , free hydrochloric acid, 29, total acid, 60 (Stool shows occult blood) (2) Roentgen examination Large Stomach, fair position, hyperperistalsis, hypermotility Large intestine in good position

Summary—Hyperactive stomach Irritative lesion in region of duodenum, probably ulcer

Case 8—Woman, aged 21 years Acne severe, duration three years Patient complains of full feeling in stomach after meals and is constipated (1) Gastric examination Fasting stomach, 5 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 17 c c , free hydrochloric acid, 20, total acid, 44 (2) Roentgen examination Stomach, fish-hook type, three fingers' breadths below crest of ilium Normal peristalsis, hypermotility, cecal stasis Hepatic flexure and ascending colon kinked back on cecum, prolapse of the transverse colon

Summary — Prolapse of the stomach and colon Right lower quadrant adhesions Hyperchlorhydria Fecal stasis Condition suggests chronic appendix with hyperactive stomach

Case 9—Boy, aged 16 Acne severe, duration one year No gastric symptoms except belching of sour food occasionally after meals Bowels regular (1) Gastric examination Fasting stomach, 10 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 58 c c , free hydrochloric acid, 12, total acid, 35 (2) Roentgen examination Stomach practically in normal position, slightly on the right side No cecal stasis Segmentation of the transverse colon Bismuth mostly in the rectum

Summary—Intestinal picture of mucous colitis, hypoacidity

Case 10—Girl, aged 19 Acne mild, duration five years No gastric symptoms, bowels regular (1) Gastric examination Fasting stomach, 22 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination A few starch granules present Test breakfast, 25 c c , free hydrochloric acid, 37, total acid, 51 (2) Roentgen examination Stomach normal in size and position, no cecal stasis, marked ptosis of the transverse colon, which reaches to the bottom of the pelvis Marked redundancy and atony of the transverse colon

Summary—Marked ptosis of transverse colon, fecal stasis

Case 11—Woman, aged 23 Acne severe, duration one year No symptoms referable to gastro-intestinal tract, bowels regular (1) Gastric examination Fasting stomach, 45 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 135 c c , free acid, 18, total acid, 43 (2) Roentgen examination Stomach ptosed nearly to bottom of pelvis, atonic with sluggish peristalsis Cecal stasis

Summary—Ptosis and atony of stomach, hypersecretion, hyperchlorhydria, fecal stasis

Case 12—Boy, aged 18 Acne medium, duration one year, No gastro-intestinal symptoms Bowels regular (1) Gastric examination Fasting stomach empty Test breakfast, free hydrochloric acid, 14, total acid, 24 (2) Roentgen examination Stomach large, atonic, at level of crest of the ilium, poor peristalsis and motility, stomach pulled somewhat down into the lower right quadrant, moderate cecal stasis, prolapsed spastic transverse colon

Summary—Right lower quadrant adhesions, fecal stasis, atony of the stomach and hyperchlorhydria, probably a chronic appendicitis

Case 13—Man, aged 21 Acne medium, duration five years No gastro-intestinal symptoms, bowels constipated (1) Gastric examination Fasting stomach, 10 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch positive Test breakfast, 80 c c , free hydrochloric acid, 28, total acid, 31 (2) Roentgen examination Stomach two fingers' breadths below the crest of the ilium Good peristalsis and motility No cecal stasis, most of the bismuth in descending colon and rectum

Summary—Practically normal finding with slight gastroptosis

Case 14—Boy, aged 15 Acne medium, duration two years Patient often has fulness of stomach and shortness of breath after eating fried food Bowels regular (1) Gastric examination Fasting stomach, 12 c c , free hydrochloric acid negative, Hausmann's test negative Microscopic examination Starch positive Test breakfast, 20 c c , free hydrochloric acid, 4, total acid, 8 (2) Roentgen examination Stomach to level of crest of ilium, normal size, good tone Pylorus pulled down to right lower quadrant, cecal stasis Ascending and first part of transverse colon kinked back on cecum Pyloric and cecal regions move *en masse* Ptosis of transverse colon

Summary—Right lower quadrant adhesions, fecal stasis, marked subacidity, suggests chronic appendicitis

CASE 15—Boy aged 19 Acne medium duration three years Occasionally spits up sour food after meals Bowels regular (1) Gastric examination Fasting stomach, 10 c.c , Hausmann's test negative. Microscopic examination Starch positive. Free hydrochloric acid present Test breakfast, free acid, 5, total acid, 17 (2) Roentgen examination Stomach good position, vertical type, reaches to the crest of the ilium, good peristalsis and motility Vertical duodenal cap, definite cecal stasis, ptosis of hepatic flexure with kinking back of ascending and transverse colon on cecum, fixation of cecum Spastic transverse colon

Summary —Subacidity marked, fecal stasis and spastic transverse colon

CASE 16—Boy, aged 13 Acne medium duration one and one-half years Patient often spits up sour food after meals Bowels regular (1) Gastric examination Fasting stomach, 10 c c., free hydrochloric acid present, Hausmann s test negative Microscopic examination A few starch granules present Test breakfast, 25 c c , free hydrochloric acid 22, total acid, 36 (2) Roentgen examination Stomach three fingers' breadths above the crest of the ilium normal size slightly atonic, cecal stasis, pylorus pulled down and to the right. No evidence of definite adhesions in cecal region Large amount of bismuth in cecal region

Summary—Slight subacidity, fecal stasis

CASE 17—Boy aged 14 Acne mild, duration six months No gastric symptoms, bowels regular (1) Gastric examination Fasting stomach, 10 c c., free hydrochloric acid present, Hausmann s test positive Microscopic examination starch positive. Test breakfast 40 c.c , free acid 35, total acid. 52 (2) Roentgen examination Stomach normal sized pylorus drawn down into right lower quadrant, increased peristalsis cecal stasis, ascending colon kinked back on cecum Transverse colon in good position

Summary—Right lower quadrant adhesions with hyperactive stomach suggesting chronic appendicitis, fecal stasis

CASE 18—Man, aged 21 Acne medium, duration three years Patient often belches up sour food after meals and occasionally after eating meats he has pains in the right side Bowels regular (This patient also has a vesicular eczema on hands of three weeks' duration) (1) Gastric examination Fasting stomach, 25 c.c., free hydrochloric acid present, Hausmann's test positive Microscopic examination Starch positive Test breakfast 110 c c , free hydrochloric acid, 34, total acid, 51 Roentgen examination Hypermotility and hyperperistalsis of stomach, pylorus pulled over to right and downward, moderate cecal stasis Hepatic flexure pulled over to prepyloric region, then back on cecum and up to splenic flexure.

Summary—Right lower quadrant adhesions suggesting chronic appendicitis, hypermotility of stomach, moderate fecal stasis

CASE 19—Girl, aged 15 Acne mild duration two years Patient occasionally spits up sour food after meals, and has a feeling of fulness in epigastrium (1) Gastric examination Fasting stomach, 15 c.c., free hydrochloric acid present, Hausmann s test and microscopic starch negative. Test breakfast 90 c.c., free hydrochloric acid 24 total acid, 51 (2) Roentgen examination Stomach normal sized, with marked increase in peristalsis, pylorus pulled down to right lower quadrant.

Summary—Chronic appendicitis

CASE 20—Woman aged 21 Acne mild duration eight years Patient occasionally has 'heart burn' and a feeling of fulness after meals Bowels constipated unless she takes medicine regularly (1) Gastric examination Fasting stomach 35 c.c., free hydrochloric acid present Hausmann s test and microscopic starch negative Test breakfast 75 c c , free hydrochloric acid 25, total acid 40 (2) Roentgen examination Stomach normal in size, in good position with slight tendency to hour glass type At junction of middle and upper third there is a slight prepyloric bulging Vertical duodenal cap present Moderate cecal stasis Ascending colon kinked back on cecum and drawn down to prepyloric region Colon in good position

Summary—Pericecal adhesions with reflex spastic stomach, fecal stasis, suggests a high chronic appendicitis with probable pylorospasm

CASE 21—Woman aged 21 Acne mild duration two years Patient often has "heart burn' and belches sour food after meals Bowels constipated (1) Gastric examination Fasting stomach, 5 c.c , free hydrochloric acid present Hausmann s test and microscopic starch negative. Test breakfast 50 c.c , free hydrochloric acid, 30, total acid 17 (2) Roentgen examination Stomach normal size, reaching just to crest, vertical fishhook type. Orthotonic, good peristalsis and motility No cecal stasis Most of bismuth in sigmoid and rectum Very slight ptosis

Summary—Subacidity, slight ptosis

CASE 22—Boy, aged 18 Acne severe, duration three years No gastric symptoms Bowels regular (1) Gastric examination Fasting stomach, 25 c.c., free hydrochloric acid present, Hausmann s test and microscopic starch negative Test breakfast 125 c c., free hydrochloric acid 42, total acid 62 (2) Roentgen examination Stomach to level of crest, vertical fishhook type, slightly atonic, sluggish peristalsis and motility Pylorus ptosed Cecal stasis (Rest of picture not made out, as patient's bowels had moved)

Summary—Gastroptosis with atony, fecal stasis, slight hyperacidity

CASE 23—Girl, aged 20 Acne severe, duration five years Has had indigestion for a number of years Has feeling of fulness and belches food after meals Bowels constipated (1) Gastric examination Fasting stomach, 40 c c., free hydrochloric acid present, Hausmann's test and microscopic starch negative. Test breakfast free hydrochloric acid 6, total acid 18 (2) Roentgen examination Stomach dilated atonic and ptosed a hand s breadth below crest of ilium Marked prolapse of the transverse colon Considerable bismuth in rectum

Summary—Splanchnoptosis with atony of stomach and marked subacidity, fecal stasis

CASE 24—Boy, aged 18 Acne medium duration two years No gastro-intestinal symptoms Bowels move daily (1) Gastric examination Fasting stomach 20 c c., free hydrochloric acid present, Hausmann s test and microscopic starch negative Test breakfast 10 c.c , free hydrochloric acid 29, total acid 40 (2) Roentgen examination Stomach normal size reaching to crest, vertical type, lateral duodenal cap Increased peristalsis and motility Moderate cecal stasis and ptosis of transverse colon Bismuth seen going over in large quantities into duodenum

Summary—Hypermotility of stomach, ptosis of transverse colon, fecal stasis, possible irritative duodenal lesion

CASE 25—Girl aged 25 Acne mild, duration three years Patient often has a sour stomach and belches after meals Bowels constipated (1) Gastric examination Fasting stomach (lost) Test breakfast 90 c c., free hydrochloric acid 26, total acid 60 (2) Roentgen examination Baglike atonic stomach Ptosis of stomach and intestines Kinking of the ascending colon and hepatic flexure.

Summary—Ptosis and atony of stomach and intestines, fecal stasis

CASE 26—Girl aged 20 Acne medium duration one year No gastro-intestinal symptoms Bowels regular (1) Gastric examination Fasting stomach 20 c c , free hydrochloric acid present, Hausmann s test and microscopic starch positive Test breakfast 110 c.c. free hydrochloric acid 13 total acid 41 (2) Roentgen examination Stomach in good position Cecal stasis Hepatic flexure bent back on cecum forming an angle Prolapse of the transverse colon

Summary—Prolapse of transverse colon, cecal stasis subacidity

Test breakfast, 70 c c , free hydrochloric acid, 10, total acid, 41 (2) Roentgen examination Stomach large and atonic Cecal stasis and prolapse of the transverse colon

Summary—Hypochlorhydria Ptosis and atony of the stomach Ptosis of the colon Cecal stasis

Case 2—Girl, aged 17 Acne mild, duration six months No history of gastric disturbances Bowels regular (1) Gastric examination Fasting stomach, 40 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 130 c c , free hydrocloric acid, 36, total acid, 56 (2) Roentgen examination Stomach in good position, slightly atonic Intestines normal

Summary—Practically normal findings (except slight gastric atony)

Case 3—Negro woman, aged 30 Acne medium, duration five or six years Patient often has a tight feeling in the stomach and belches sour food after meals Bowels constipated (1) Gastric examination Fasting stomach, 20 c c , Hausmann's test positive Microscopic examination Starch positive Free hydrochloric acid present Test breakfast, 80 c c , free hydrochloric acid 27, total acid, 44 (2) Roentgen examination Stomach high Slight prepyloric bulging Motor function normal Prolapse of the hepatic flexure On deep inspiration prepyloric region pulled out, suggesting loose lower right quadrant adhesions

Summary—Spastic pylorus with slight retention, due to a reflex spasm from right lower quadrant adhesions Prolapse of hepatic flexure

Case 4—Girl, aged 20 Acne medium, duration six years Patient often belches sour food after meals Bowels constipated (1) Gastric examination Fasting stomach, 55 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 20 c c , free hydrochloric acid, 4, total acid, 24 (2) Roentgen examination Stomach dilated, three fingers' breadths below crest of the ilium Congenitally fixed duodenum Sluggish peristalsis

Summary—Gastric atony and stasis Hypochlorhydria

Case 5—Girl, aged 18 Acne medium, duration two years Often has hiccups and a sour taste after meals Bowels regular (1) Gastric examination Fasting stomach, 45 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 77 c c , free hydrochloric acid, 40, total acid, 72 (2) Roentgen examination Stomach just below crest of ilium Normal size Hyperperistalsis and motility Prepyloric bulging Moderate prolapse of hepatic flexure which is pulled over to pyloric region, then drops down to the left iliac fossa, thence irregularly up to the splenic flexure, which is in good position

Summary—Hyperacidity and slight hypersecretion Hyperperistalsis and motility Suggests irritative lesion in the pyloric region, possibly duodenal ulcer Pelvic adhesions

Case 6—Boy, aged 15 years Acne mild, duration two months No gastric symptoms Bowels regular (1) Gastric examination Fasting stomach, 84 c c , free hydrochloric acid present, Hausmann's test positive Microscopic examination Starch positive Test breakfast, 100 c c , free hydrochloric acid, 23, total acid, 37 (2) Roentgen examination Stomach very large, three fingers' breadths below crest of ilium Markedly increased peristalsis, bismuth going over rapidly into duodenum Some prepyloric bulging Prolapse of the transverse colon

Summary—Irritative lesion in pyloric region with gastric retention and ptosis of transverse colon

Case 7—Boy, aged 19 Acne medium, duration one year For the past three months has had colicky pains in the stomach with no reference to meals Has been constipated for the last three months (1) Gastric examination Fasting stomach, 16 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 23 c c , free hydrochloric acid, 29, total acid, 60 (Stool shows occult blood) (2) Roentgen examination Stomach, fair position, hyperperistalsis, hypermotility Large intestine in good position

Summary—Hyperactive stomach Irritative lesion in region of duodenum, probably ulcer

Case 8—Woman, aged 21 years Acne severe, duration three years Patient complains of full feeling in stomach after meals and is constipated (1) Gastric examination Fasting stomach, 5 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 17 c c , free hydrochloric acid, 20, total acid, 44 (2) Roentgen examination Stomach, fish-hook type, three fingers' breadths below crest of ilium Normal peristalsis, hypermotility, cecal stasis Hepatic flexure and ascending colon kinked back on cecum, prolapse of the transverse colon

Summary — Prolapse of the stomach and colon Right lower quadrant adhesions Hyperchlorhydria Fecal stasis Condition suggests chronic appendix with hyperactive stomach

Case 9—Boy, aged 16 Acne severe, duration one year No gastric symptoms except belching of sour food occasionally after meals Bowels regular (1) Gastric examination Fasting stomach, 10 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 58 c c , free hydrochloric acid, 12; total acid, 35 (2) Roentgen examination Stomach practically in normal position, slightly on the right side No cecal stasis Segmentation of the transverse colon Bismuth mostly in the rectum

Summary—Intestinal picture of mucous colitis, hypoacidity

Case 10—Girl, aged 19 Acne mild, duration five years No gastric symptoms, bowels regular (1) Gastric examination Fasting stomach, 22 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination A few starch granules present Test breakfast, 25 c c , free hydrochloric acid, 37, total acid, 51 (2) Roentgen examination Stomach normal in size and position, no cecal stasis, marked ptosis of the transverse colon, which reaches to the bottom of the pelvis Marked redundancy and atony of the transverse colon

Summary—Marked ptosis of transverse colon, fecal stasis

Case 11—Woman, aged 23 Acne severe, duration one year No symptoms referable to gastro-intestinal tract, bowels regular (1) Gastric examination Fasting stomach, 45 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch negative Test breakfast, 135 c c , free acid, 18, total acid, 43 (2) Roentgen examination Stomach ptosed nearly to bottom of pelvis, atonic with sluggish peristalsis Cecal stasis

Summary—Ptosis and atony of stomach, hypersecretion, hyperchlorhydria, fecal stasis

Case 12—Boy, aged 18 Acne medium, duration one year, No gastro-intestinal symptoms Bowels regular (1) Gastric examination Fasting stomach empty Test breakfast, free hydrochloric acid, 14, total acid, 24 (2) Roentgen examination Stomach large, atonic, at level of crest of the ilium, poor peristalsis and motility, stomach pulled somewhat down into the lower right quadrant, moderate cecal stasis, prolapsed spastic transverse colon

Summary—Right lower quadrant adhesions, fecal stasis, atony of the stomach and hyperchlorhydria, probably a chronic appendicitis

Case 13—Man, aged 21 Acne medium, duration five years No gastro-intestinal symptoms, bowels constipated (1) Gastric examination Fasting stomach, 10 c c , free hydrochloric acid present, Hausmann's test negative Microscopic examination Starch positive Test breakfast, 80 c c , free hydrochloric acid, 28, total acid, 31 (2) Roentgen examination Stomach two fingers' breadths below the crest of the ilium Good peristalsis and motility No cecal stasis, most of the bismuth in descending colon and rectum

Summary—Practically normal finding with slight gastroptosis

Case 14—Boy, aged 15 Acne medium, duration two years Patient often has fulness of stomach and shortness of breath after eating fried food Bowels regular (1) Gastric examination Fasting stomach, 12 c c , free hydrochloric acid negative, Hausmann's test negative Microscopic examination Starch positive Test breakfast, 20 c c , free hydrothese cases, Nos 1, 3, 4, 6, 8, 10, 11, 12, 14, 15, 17, 18, 19, 20, 22, 23, 25, 26, 27 and 28, which constitutes 60 per cent of the total

Our observations are too limited to draw any very definite conclusions as to the nature of the relations between acne vulgaris and gastro-intestinal abnormalities but we feel that our results show that the well established clinical observations as to the association of these conditions have, in many cases, a well-founded pathologic basis

CONCLUSIONS

1 Acne vulgaris is generally conceded to be caused by the presence and growth of the acne bacillus

2 There are a number of predisposing factors to this disease, one of the most important of which is gastro-intestinal derangements

3 In a series of thirty cases of acne vulgaris, which were examined from the gastro-intestinal side, by test meals and fluoroscopic observations, we found that none of them gave absolutely normal findings, and that 60 per cent of the cases showed abnormalities which were of such a nature as to permit gastric and intestinal stasis followed by toxic absorption

529 North Charles Street—1100 North Charles Street.

ABSTRACT OF DISCUSSION

Dr Michael Leo Ravitch, Louisville, Ky While the gastro-intestinal tract may have some influence as a causative factor in acne, I do not believe it is a very potent one Judging from the fact that acne usually makes its appearance about puberty, I think the gastro-intestinal tract can be ruled out as a very important or primal factor About this period of life glandular activity is very marked, but what causes this glandular hyperactivity we do not know I have seen many cases of acne that failed to improve under various modifications of diet, no matter how strictly they have been followed

Dr H H Hazen, Washington, D C From the results of this work we are justified in deducing at least one conclusion, namely, that stasis or other abnormal conditions of the gastro-intestinal tract are not such important factors in the causation of acne vulgaris as some writers would have us believe

Dr Walter J Heimann, New York Dr H J Schwartz and I found hyperglycemia in 60 per cent of the seborrheas, including acne In a very large proportion of cases of acne there are gastro-intestinal disturbances, chiefly either hyperacidity or carbohydrate fermentation It is possible that these may be associated with the disturbed sugar metabolism Perhaps a combination of these ideas with those outlined by Drs Ketron and King will ultimately lead us to an understanding of the underlying cause, if not to that of the local cause, which may be the acne bacillus

Dr Lloyd W Ketron, Baltimore We have no claims to set forth We simply wish to present the facts for what they are worth It is probable that patients with eczema or some other skin diseases may show just as high a percentage of intestinal derangements as do acne cases Our figures show that a large percentage of these patients suffer from intestinal stasis and retention and under these conditions we would be more apt to meet with deranged protein metabolism

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Superstition—In some parts of France there was formerly a custom of covering a newly born infant with salt in order to conduce to longevity, the salt was allowed to remain on for two or three days and then was washed off with wine and water The academician St. Aulaire was so treated as an infant, and undoubtedly lived to be very old Pythagoras regarded honey as conducive to long life and, according to Hufeland, the Egyptians prescribed courses of emetics with the same object—Saundby

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New Instruments and Suggestions

USE OF CITRATED PLASMA IN TISSUE CULTURES

PRELIMINARY REPORT*

N Chandler Foot, M D, Boston
Instructor in Pathology, Harvard Medical School

The Burrows Carrel method of cultivating tissue in coagulated plasma at body temperature[1] is already so well known that in describing a modification of it I shall merely touch on those points in the procedure which are affected thereby

While the method gives almost perfect results in the laboratory in connection with animal experimentation, it unfortunately has its drawbacks when one wishes to apply it to work on the human subject in the hospital In the first place, one must have a powerful centrifuge at hand, so that the blood may be centrifugalized without loss of time, otherwise *it is apt to clot during the process* If the donor can come to the laboratory, this is easy, but if the blood is to be collected in a distant ward and brought to the laboratory, one often finds it clotted on removing it from the machine The necessity of providing cracked ice or snow is often rather inconvenient, and the fact that this frequently melts almost completely during centrifugalizing makes it liable to spill into the tubes and contaminate their contents Lastly, the necessity for paraffining and chilling all the glassware used during the preparation of the plasma is also more or less troublesome

While one is working in a hospital it is not always easy to be on hand when a venesection is to be performed, nor is it always possible to be ready with cracked ice and paraffined glassware at such a time On the other hand, as venesections are frequently done, or blood is obtained for Wassermann or other tests by the hospital staff, it occurred to me some time ago that it would be very easy for an intern to obtain such blood at any convenient time were it treated with some anticoagulant, such as sodium citrate, and set aside till wanted by the experimenter

It has been shown that such blood can readily be recoagulated at will by the addition of a solution containing calcium and modern researches on transfusion have demonstrated the tolerance of the human organism for citrated blood The conclusion is obvious why not use citrated plasma for cell cultures recoagulating it on the coverslip by the addition of a calcium solution? To test out the feasibility of this idea, I began experimenting along these lines with perfectly satisfactory results, apparently in no way inferior to those obtained by the use of the original method

The blood to be used is collected in tubes or flasks containing enough of a 0.2 or 0 3 per cent solution of sodium citrate to make the total amount of the mixture contain one part of this to nine parts of blood It may be drawn direct from the vein, through a cannula (preferably oiled) or into a syringe containing a sufficient quantity of the citrate solution care being exercised to insure a thorough mixture of the blood with the citrate solution The blood so collected is then centrifugalized for from ten to fifteen minutes in a powerful machine (the ordinary hand centrifuge is usually too slow for this work), and the resulting plasma decanted or pipetted into a flask which is then put away on ice or in a cool place until wanted I have always used paraffined flasks for this purpose as the paraffin tends to prevent clotting It will remain fluid and usable for a considerable time a week or two at any rate

The cultures are prepared in the usual way, a drop of the plasma being mixed on the coverslip with an equal amount of Ringer s or Locke s solution the amount of calcium chlorid in these being increased ten times (from 0 025 to 0.25) in order to provide the excess of calcium necessary to overcome

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* From the Department of Pathology Harvard Medical School and the Pathological Laboratory of the Peter Bent Brigham Hospital

[1] Abdernalden E Handbuch der biochemischen Arbeitsmethoden 1912 v Pt. 2 Carrel A, and Ingebrigtsen R Jour Exper Med 1912 xv 287

Case 27—Girl, aged 18 Acne mild, duration five months Patient occasionally belches sour food and has cramps in stomach after meals (1) Gastric examination Fasting stomach free hydrochloric acid present, Hausmann's test and microscopic starch positive Test breakfast (refused) (2) Roentgen examination Atonic ptosed stomach, three fingers' breadths below the crest of the ilium on left side Cecal stasis and ptosis of the large intestine

Summary—Ptosis and atony of stomach and colon, gastric retention, fecal stasis

Case 28—Girl, aged 19 Acne medium, duration two months No gastro-intestinal symptoms Bowels regular (1) Gastric examination (refused) (2) Roentgen examination Stomach slightly ptosed and atonic Transverse colon kinked back and adherent to the cecum Hepatic flexure prolapsed Cecal stasis Pylorus drawn slightly down into the right lower quadrant Cecal and prepyloric region move *en masse*

Summary—Ptosis and atony of stomach Cecal stasis Right lower quadrant adhesions Suggests chronic appendicitis Fecal stasis

Case 29—Boy, aged 17 Acne severe, duration one year No gastro-intestinal symptoms Bowels constipated (1) Gastric examination Fasting stomach 10 c c , free hydrochloric acid positive, Hausmann's test and microscopic starch negative Test breakfast Free acid, 49, total acid, 79 (2) Roentgen examination Stomach just to crest Normal in size Hyperperistalsis and motility No cecal stasis Transverse colon in good position Spastic transverse colon

Summary—Hyperchlorhydria, spastic, transverse colon (suggesting mucous colitis)

Case 30—Boy, negro, aged 21 Acne medium, duration one year Patient sometimes belches sour food after meals Bowels constipated, except for past two weeks (1) Gastric examination Fasting stomach, 5 c c , free hydrochloric acid present, Hausmann's test and microscopic starch positive Test breakfast (refused) (2) Roentgen examination Normal intestinal picture

COMMENT

In an analysis of our cases, presented in the accompanying table, it is seen that those showing gastric abnormalities, 93 per cent, are somewhat greater in number than the ones showing intestinal abnormalities, 70 per cent The most common gastric findings were hyperacidity, 48 1 per cent , retention, 36 6 per cent , atony, 33 3 per cent, and ptosis, 40 0 per cent The most common intestinal findings were cecal stasis, 46 6 per cent , ptosis of the colon, 36 6 per cent, and right lower quadrant adhesions, 23 3 per cent Clinically, 63 3 per cent of the cases gave evidence of gastric disturbances, and 40 per cent of them were constipated

It is rather striking that none of the cases examined gave entirely normal gastro-intestinal findings These findings, however, in a few of the cases were of such mild degree or nature that they could not be considered as giving rise to any pathologic state

Since the most important factors (as subacidity, gastric and intestinal ptosis, atony, adhesions and cecal stasis), which would probably predispose to acne, are those which permit gastric or intestinal retention followed by toxic absorption, we have therefore selected from our cases those which show these abnormalities to such a degree that a basis for toxic absorption can definitely be presumed to exist There are twenty of

PRINCIPAL GASTRO-INTESTINAL FINDINGS IN ACNE VULGARIS

						Gastric Acidity				Gastric Secretion			Gastric Tone			Gastric Motility		Gastric Position			Intestinal Findings						
Case No	Age	Sex	Degree*	Duration	Gastric Disturbances Clinical	Normal	Hypacidity	Hyperacidity	Achylia	Normal	Hypersecretion	Retention	Orthotonic	Hypertonic	Atonic	Hypermotility	Hypomotility	Normal	Gastroptosis	Constipation, Clinical	Cecal Stasis	Coloptosis	Atonic Colon	Spastic Colon	R. L Q Adhesions	Gastric Reflexes	Remarks
1	15	M	A	6 mo	+		+			+					+		+		+	+	+	+					
2	17	F	M	6 mo		+					+				+		+	+									
3	30	F	A	5 yrs	+	+						+	+						+	+	+				+	Pyloro spasm	Chronic appendix
4	20	F	A	6 yrs	+		+				+				+		+		+	+	+						
5	18	F	A	2 yrs	+			+			+			+		+		+									
6	15	M	M	2 mo			+				+	+		+		+			+			+					
7	19	M	A	1 yr	+	+				+				+		+		+									
8	21	F	S	2 yrs	+	+				+			+						+	+	+	+					
9	16	F	S	1 yr	+		+			+			+					+						+			Mucous colitis
10	19	F	M	5 yrs		+						+	+					+			+	+					
11	23	F	S	2 yrs			+			+					+		+		+			+					
12	18	M	A	1 yr			+			+					+		+		+		+	+		+	+		
13	21	M	A	5 yrs			+					+	+						+	+							
14	15	M	A	2 yrs	+		+					+	+					+			+	+			+		Chronic appendix
15	19	M	A	3 yrs	+		+					+	+					+									
16	13	M	A	2 yrs	+		+					+			+		+	+			+						
17	14	M	M	6 mo		+						+		+				+							+		Chronic appendix
18	21	M	A	3 yrs	+	+						+		+		+		+			+				+	Pyloro spasm	Chronic appendix
19	15	F	M	2 yrs	+	+					+			+				+		+					+	Pyloro spasm	Chronic appendix
20	21	F	M	8 yrs	+	+					+		+					+		+					+		
21	21	F	M	2 yrs	+		+			+			+					+		+							
22	18	M	S	3 yrs				+		+					+		+	+									
23	20	F	S	5 yrs	+		+			+					+		+		+	+	+						
24	18	M	A	2 yrs		+				+				+				+			+	+					
25	25	[illegible]	M	3 yrs	+	+				+					+		+		+	+		+					
26	20	F	A	1 yr			+			+			+					+			+	+					
27	18	F	M	5 mo	+	†	†	†				+			+		+		+		+	+					
28	19	F	A	1 yr	+	†	†	†					+						+	+							
29	17	M	S	1 yr				+		+				+				+		+							
30	21	M	A	1 yr	+	†	†	†				+	+					+			+			+			
Number					19	11	13	3	0	13	6	11	12	8	10	4	10	18	12	12	14	11	0	3	7		
Percentage					63 3	40 7	48 1	11 1	0	43 3	20 0	36 6	40 0	26 6	33 3	13 3	33 3	60 0	40 0	40 0	46 6	36 6	0	10 0	23 3		

* A signifies average, M, mild, S, severe

† Test meal refused

TETANUS CASES OF PREVIOUS YEARS BY STATES

The various tables are printed again to show the totals for the fourteen years Table 1 shows the cases reported in all previous years since 1903 and the totals Although Pennsylvania had the largest numbers in 1903 and 1904, thereafter until 1910 Illinois reported the largest numbers In fact, Illinois had the largest number of tetanus cases in the thirteen years, having reported 157 cases, followed closely by Pennsylvania, with 152 Ohio reported 119, New York, 93, Michigan, 80, New Jersey, 79, Missouri, 52, Wisconsin, 51, and Massachusetts, 48 Altogether, in the thirteen years, 1,119 tetanus cases were reported as due to injuries resulting from the use of fireworks in celebrating the Fourth of July, and of this number, 991 patients died

TABLE 2—RATIO OF TETANUS CASES TO BLANK CARTRIDGE INJURIES

Year	Tetanus Cases	Blank Cartridge Injuries	Ratio
1903	417	1 672	1 4 01
1904	105	905	1 8 62
1905	104	809	1 7 78
1906	89	979	1 11 00
1907	73	606	1 8 16
1908	76	874	1 11 50
1909	150	1 225	1 8 17
1910	72	450	1 6 25
1911	18	185	1 10 28
1912	7	77	1 11 00
1913	4	101	1 25 25
1914	3	124	1 41 33
1915	1	295	1 295 0
Totals	1 119	8 457	1 7 53

BLANK CARTRIDGE WOUNDS AND TETANUS

The proportion of blank cartridge injuries to the cases of lockjaw reported during the thirteen years is given in Table 2 The two years in which the largest numbers of lockjaw cases were reported were 1903 and 1909, when also the two largest numbers of blank cartridge wounds were reported In 1903 one case of lockjaw resulted from every four blank cartridge injuries, and in 1909, one case from every eight injuries The proportion of cases to blank cartridge injuries in the entire thirteen years was 1 to every 7½ blank cartridge injuries The one case in 1915 was due to this cause, although there were 295 blank cartridge wounds The decreasing proportion of tetanus cases to such injuries in the last three or four years was doubtless due to the more general and prompt use of antitoxin in such injuries

TABLE 3—CAUSES OF TETANUS CASES

Year	Blank Cartridge	Giant Cracker	Cannon	Firearms	Powder etc	Total
1903	363	17	5	3	29	417
1904	74	18	5	1	7	105
1905	65	17	4	5	13	104
1906	54	17	1	7	10	89
1907	52	8	6	4	3	73
1908	58	5	4	3	6	76
1909	130	9	1	4	6	150
1910	64	2		5	1	72
1911	15	1	1		1	18
1912	7					7
1913	4					4
1914	2			1		3
1915	1					1
Totals	889	94	27	33	76	1 119

CAUSES OF LOCKJAW CASES

The causes of all tetanus cases during the thirteen years are shown in Table 3 Of the 1,119 cases of lockjaw from Fourth of July injuries reported for the thirteen years, 889 (79 4 per cent) were caused by wounds from blank cartridges, 94 (8 4 per cent) from giant crackers, 76 (6 9 per cent) from powder

TABLE 4—CASES OF TETANUS FROM OTHER CAUSES

	1908	1909	1910	1911	1912	1913	1914	1915	1916
Alabama			1	1					
Arizona						1			
Arkansas	2								
California	4	4	1	2	7	10		1	2
Colorado	3			1					
Connecticut	2	2							
Delaware	2	1							
Dist of Columbia									
Florida	2								
Georgia		1						1	
Idaho									
Illinois	17	18	7	6	10	7			
Indiana	6	4	1	2	1	3	1	1	2
Iowa	2	7	3	1		2	1		1
Kansas	4		1						
Kentucky	5	5		1	2		3	1	
Louisiana	1			1	3	3			1
Maine									
Maryland	3		2	1	1				
Massachusetts	3	7							
Michigan	4	5	1				1		
Minnesota	4	2							
Mississippi									
Missouri	12	5	1	2	3			3	
Montana									
Nebraska		3	1	1	1				
Nevada									
New Hampshire									
New Jersey	7	8	8	1			3		
New Mexico		1							
New York	17	12	4	2	4		2		1
North Carolina	1					1			
North Dakota	1								
Ohio	23	13	2		2	1	3		
Oklahoma									
Oregon		1	3		2				
Pennsylvania	21	21	8	6	4	1	2	2	1
Rhode Island		1							
South Carolina									
South Dakota	2	2							
Tennessee	3				1	1			
Texas	4	1	1						
Utah									
Vermont			1						
Virginia	4	1		1	2	1			
Washington	2				1				
West Virginia		1							
Wisconsin	5	4	1			1		1	2
Wyoming									
Totals	166	128	47	29	44	32	16	10	10
States reporting case	29	25	18	15	15	12	8	7	7

TABLE 5—CAUSES OF DEATHS NOT DUE TO TETANUS

Year	Gun shot	Fire from Fireworks	Powder Torpedoes etc	Giant Crackers	Cannon	Other Causes	Total
1905	37	23	6	5	7	17	95
1906	38	18	18	3	3	3	83
1907	20	31	13	13	3	22	102
1908	30	22	19	23	7	7	108
1909	17	37	16	7	7	6	90
1910	19	26	11	2	3	3	64
1911	11	12	9	2	5	8	47
1912	9	8	7	2	2	7	35
1913	8	13	6		1	1	29
1914	5	16	6	1	4	5	37
1915	5	11	5		6	2	29
1916	9	10	3	1	4	3	30
Total	208	227	119	59	52	84	749

In the summaries for 1903 and 1904 there were respectively 60 and 92 deaths from fireworks exclusive of tetanus The causes of the injuries were not given With these included the total deaths in the fourteen years aside from tetanus were 901 and explosives, 33 (2.9 per cent) from firearms, and 27 (2.4 per cent) from toy cannons. In other words, over three times as many lockjaw cases were due to blank cartridge injuries as to all other injuries put together.

TETANUS CASES NOT DUE TO FIREWORKS

Tetanus cases reported during the Fourth of July season but which were due to other causes, such as crushing injuries or penetrating wounds from splinters, nails, etc., are shown in Table 4. The number of such cases is likewise decreasing each year, owing probably to more care being taken in the treatment of penetrating wounds as well as to the prophylactic use of antitoxin. No case from fireworks was reported.

OTHER DEATHS AND INJURIES FROM FIREWORKS

There were thirty deaths directly due to fireworks. The causes of deaths, other than from tetanus, are shown in Table 5, in comparison with the numbers due to similar causes in previous years. Of these, ten persons were burned to death by fire from fireworks, nine were from gunshot wounds, four from explosions of toy cannons, three from explosions of powder, three from bloodpoisoning following more

TABLE 6—SUMMARY BY STATES OF FOURTH OF JULY CASUALTIES

Marginal Number	States	Deaths			Injuries						Total Persons Dead or Injured	Causes of Tetanus Cases		Causes of all Cases Aside from Tetanus Cases					Marginal Number
		From Tetanus	From Other Causes	Total	Loss of Sight	Loss of One Eye	Loss of Legs Arms or Hands	Loss of Fingers, One or More	Other Injuries	Total Not Fatal Injuries		Blank Cartridge	All Other Causes	Blank Cartridge	Firecracker	Cannon	Firearms	Powder and Fireworks	
1	Alabama																		1
2	Arizona																		2
3	Arkansas								1	1	1							1	3
4	California					2	2	1	29	34	34				8	4	3	19	4
5	Colorado								2	2	2					2			5
6	Connecticut		3	3			1	4	70	75	78			42	7	5	12	12	6
7	Delaware								2	2	2						1	1	7
8	District of Columbia																		8
9	Florida		1	1							1						1		9
10	Georgia																		10
11	Idaho								1	1	1							1	11
12	Illinois		2	2				2	19	21	23				5	1	4	13	12
13	Indiana		1	1					3	3	4				2	1		1	13
14	Iowa		1	1		1			9	10	11				8	1		2	14
15	Kansas					1			2	3	3			1	2				15
16	Kentucky								6	6	6			3	1			2	16
17	Louisiana								7	7	7							7	17
18	Maine																		18
19	Maryland								15	15	15			1	3		4	7	19
20	Massachusetts		5	5		2	1	1	63	67	72			7	13	7	11	34	20
21	Michigan		3	3		1	1		17	19	22			1	15	1	4	1	21
22	Minnesota								4	4	4			1	2	1			22
23	Mississippi																		23
24	Missouri		1	1		1		1	39	41	42			20	9	2	4	7	24
25	Montana		1	1							1				1				25
26	Nebraska								8	8	8				2	1		5	26
27	Nevada																		27
28	New Hampshire								2	2	2				1	1			28
29	New Jersey		1	1				2	26	28	29			7	9	3	1	9	29
30	New Mexico																		30
31	New York		2	2				5	164	169	171		*	65	31	16	26	33	31
32	North Carolina																		32
33	North Dakota																		33
34	Ohio		1	1		1	2		18	21	22			1	4	8	4	5	34
35	Oklahoma								1	1	1				1				35
36	Oregon		2	2					3	3	5				1	1		3	36
37	Pennsylvania		6	6		1	1	5	204	211	217			29	74	20	37	57	37
38	Rhode Island							1	11	12	12			3	2	4	3		38
39	South Carolina																		39
40	South Dakota																		40
41	Tennessee																		41
42	Texas																		42
43	Utah								2	2	2							2	43
44	Vermont								4	4	4					1		3	44
45	Virginia								1	1	1							1	45
46	Washington						1	1	10	12	12				8		2	2	46
47	West Virginia							1	13	14	14			4	4	1	1	4	47
48	Wisconsin								21	21	21				9	3		9	48
49	Wyoming																		49
50	1916 totals		30	0		10	9	24	777	820	850			185	222	84	118	241	50
51	1915 totals	1	29	30	1	11	5	38	1,080	1,135	1,165	1	0	294	227	93	100	450	51
52	1914 totals	3	37	40	3	13	16	67	1 367	1 466	1,506	2	1	122	402	143	231	605	52
53	1913 totals	3	29	32	2	22	10	46	1,051	1,131	1,163	4	0	97	312	62	169	519	53
54	1912 totals	6	35	41	8	21	13	43	862	947	988	7	0	70	362	75	157	317	54
55	1911 totals	10	47	57	8	26	30	83	1,399	1,546	1 603	15	3	170	484	114	184	633	55
56	1910 totals	67	64	131	7	33	26	114	2 612	2,792	2 923	64	8	386	1 050	212	229	974	56
57	1909 totals	125	90	215	16	36	41	176	4,823	5 092	5 307	130	20	1,095	1 614	427	341	1,680	57
58	1908 totals	55	108	163	11	93	57	184	5,115	5 460	5,623	58	18	816	1,793	399	481	2 058	58
59	1907 totals	62	102	164	12	75	57	237	3,868	4,249	4,413	52	21	554	1,489	267	502	1,528	59
60	1906 totals	75	83	158	22	72	56	227	4,931	5,308	5,466	54	35	925	1 690	408	532	1 822	60
61	1905 totals	87	95	182	25	106	80	221	4,562	4,994	5,176	65	39	744	1 775	474	404	1 675	61
62	1904 totals	91	92	183	19	61	61	208	3,637	3,986	4,169	74	25*	831	1 268	508	406	1,057	62
63	1903 totals	406	60	466	10	75	54	174	3,670	3,983	4,449	363	29†	1,309	1,152	397	236	363	63
	Totals for 14 years	991	901	1892	144	654	515	1842	39,754	42,909	44,801	889	199	7,598	13,840	3,663	4 090	14 592	

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* Kind of fireworks causing six tetanus cases unknown

† Kind of fireworks causing twenty four cases of tetanus unknown

or less minor injuries from fireworks, and one was killed by a mammoth firecracker The total shows an increase of one more than last year and one more than in 1913 It is lower than the totals in all other years The most serious fact presented this year is that ten persons, mostly little girls or small children, were burned to death by fire from fireworks, most cases being caused by the supposedly "harmless" varieties

Of the 749 deaths from Fourth of July injuries, other than from tetanus, in the twelve years, 227, the largest number, were burned to death, 208, the next largest number, were killed by firearms, 119 by explosives, 59 and 52, respectively, by giant crackers and toy cannons, and 84 persons by various forms of fireworks, some of these injuries having been complicated by bloodpoisoning Altogether, in the fourteen years, 901 persons died from injuries not complicated by tetanus Including the 991 deaths from tetanus gives a total of 1,892 persons who died, through a silly and destructive method of celebrating the Fourth of July

DISTRIBUTION OF INJURIES

In Table 6 a summary of all injuries, including tetanus, and of all causes, is given arranged by states Beneath the totals at the bottom, for comparison, the totals for the thirteen previous years are given and the grand totals for the fourteen years The number of casualties this year was 850, the lowest number since the publication of these statistics was begun It is a decrease of 315 below 1915, and a decrease of 656 below 1914

NATURE OF NONFATAL INJURIES

There were 820 nonfatal injuries this year, or 315 less than last year, and 646 less than in 1914 Not a single person was totally blinded this year, whereas ten lost one eye each, nine lost legs, arms or hands, and twenty-four lost one or more fingers The totals of these more severe injuries have markedly decreased during the last few years, the totals this year being the smallest reported during the fourteen years This year 222 injuries were due to the giant firecracker, which holds the second place in causing nonfatal injuries, but continues to hold the first place as a cause of lacerated wounds It was responsible for most of the losses of eyes, hands and fingers, but this year caused no deaths Firearms caused 118 injuries, including nine deaths As usual, many of these injuries were due to stray bullets from the reckless use of firearms by other persons The use of cannons, including many of the improvised variety, resulted in eighty-four injuries this year, including four killed In the thirteen years, a total of 44,801 persons were killed or injured in the celebration of the Fourth of July

INJURIES BY STATES FOR FOURTEEN YEARS

Table 7 gives for comparison the total injuries by states for the fourteen years This year Pennsylvania

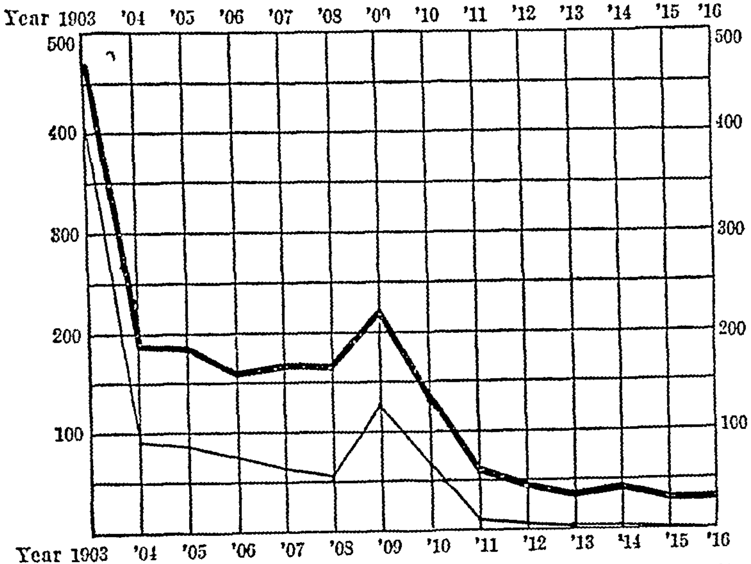
TABLE 7—TOTAL DEATHS AND ACCIDENTS BY STATES DURING FOURTEEN YEARS

	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Totals
Alabama	2	7	1	2	1	1	1	3	3		1		1		23
Arizona	1		4	5	2	5	3		2	2		2	2		28
Arkansas			3	4		5	1	4	1	1				1	20
California	100	138	142	96	121	136	89	63	43	31	22	24	40	34	1 079
Colorado	39	44	26	23	25	13	18	19	6	21	1	3	3	2	243
Connecticut	162	133	132	169	63	105	86	78	15	30	50	77	49	78	1 227
Delaware	1	5	14	8	16	12	13	8	3	6	6	8	1	2	103
District of Columbia	2	10	24	5	12	21				2	1	1	1		79
Florida	1	2	2				1	4						1	11
Georgia				4	2	4		5	10	28	4				57
Idaho	4	4	3	3	4	4	2	3	1	2		1	2	1	34
Illinois	366	423	542	598	468	558	547	285	218	39	47	95	54	23	4 263
Indiana	160	211	217	250		255	164	167	53	43	12	62	29	4	1 627
Iowa	168	137	328	255	231	174	91	141	54	24	22	27	21	11	1 684
Kansas	63	88	56	61	64	72	86	50	25	8	5	7	2	3	590
Kentucky	30	72	17	21	18	33	17	26	6	5	2	11	5	6	269
Louisiana		2	3	7	8	4		4	2	2	4	4	1	7	48
Maine	31	32	29	15	11	16	22	7	4		6	6	9		188
Maryland	21	22	13	10	23	21	10	8	13	11	15	10	23	15	215
Massachusetts	637	193	467	329	168	430	430	63	27	45	42	87	73	72	3 063
Michigan	144	157	288	193	163	203	177	143	69	50	21	72	31	22	1 733
Minnesota	157	101	174	95	95	65	69	64	17	17	6	12	18	4	894
Mississippi				2	2	1			1	1					7
Missouri	147	84	218	325	299	375	352	112	60	57	83	53	48	42	2 255
Montana	5	17	40	3	6	11	9	10		6		1	2	1	111
Nebraska	46	63	43	47	58	46	42	36	17	12	17	10	3	8	448
Nevada		1	2		1	4		1					2		11
New Hampshire	37	23	9	29	13	13	23	10	2	3	3	15	4	2	186
New Jersey	228	204	350	398	402	472	488	167	43	16	21	55	36	29	2 909
New Mexico		4	5	1	6		1	3			3		3		26
New York	522	549	566	681	752	647	897	327	237	115	144	250	332	171	6 190
North Carolina			1	1				1	5						8
North Dakota	10	8	29	11	8	13	4	13	1	2					99
Ohio	443	327	329	490	375	443	323	166	105	55	70	45	13	22	3 206
Oklahoma	0	3	7	14	194	9	12	11	9	11	1	4	1	1	277
Oregon	16	13	9	11	5	9	21	19	3	5	4	5	5	5	130
Pennsylvania	533	744	721	969	491	987	986	623	442	265	491	487	299	217	8 255
Rhode Island	64	30	11	21	29	89	42	19	11	2	21	25	5	12	341
South Carolina				1			4		1						6
South Dakota	4	10	15	5	8	10	9	4	2			1	4		72
Tennessee	4	1	5	6	4	5	4	10	3	12	3	1			58
Texas	2	2	4	11	7	11	4	2		3	2				48
Utah	23	22	25	18	20	12	18	8	2	1	1	1	2	2	165
Vermont	45	14	10	14	18	19	12	4	4	1		3		4	148
Virginia		11	5	8		5	4		3	1		5		1	43
Washington	21	25	15	25	23	38	32	37	22	12	13	5	6	12	2[illegible]
West Virginia	19	16	34	64	27	29	35	20	2	2	3	8	13	14	286
Wisconsin	190	215	200	155	170	187	157	171	52	35	16	23	22	21	1 627
Wyoming	1	2	8	3		1	1	4	4	1					25
Total	4 449	4 169	5 176	5 466	4 413	5 623	5,307	2 923	1 603	988	1 163	1,506	1 165	850	44 801

returns to first place with 217 injuries, temporarily taken away last year by New York From the beginning Pennsylvania has had the darkest record During the fourteen years there were 8,255 persons (over eight regiments) injured by fireworks, or over 2,000 more than in New York, which had 6,190 injured—the next darkest record, Illinois came third with 4,263, followed by Ohio with 3,306, Massachusetts with 3,063, New Jersey with 2,909, and Missouri with 2,255 Thirteen states each had over 1,000 persons injured, the total for these thirteen states alone being over 40,000, all the rest of the country having only approximately 5,000 injured Altogether, in the fourteen years, 44,801 persons were injured, thousands of whom were maimed for life in the old senseless form of celebration

Chart 1—Total Deaths from Fireworks

The heavy line shows the annual fluctuation in the total number of deaths since 1903 The deaths from lockjaw are indicated by the light line



Year	1903	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16
Total Deaths	466	183	182	158	164	163	215	131	57	41	32	40	30	30
Lockjaw Deaths	406	91	87	75	62	55	125	67	10	6	3	3	1	0

TOTALS IN CHIEF CITIES

Table 8 shows the number reported killed and injured in the eighty-four largest cities each year, and the totals for the past ten years The cities are arranged according to their population as given by the United States census in 1910 Philadelphia, which has been constantly in the lead since 1909, this year shunts the darkest record over to New York, which had one killed and seventy-nine injured Philadelphia had one killed and seventy-three injured Note that last year these cities, respectively, had 272 and 280 persons injured

WHERE THE RESPONSIBILITY RESTS

As has been repeatedly stated in these reports, for the great majority of Fourth of July injuries, *the responsibility clearly rests with city governments* since the employment of death-dealing methods of celebration is subject to their regulation The city authorities, therefore, who fail to do their duty must be held *personally responsible* for the maiming and the burning to death of little children from fireworks Rigidly enforced prohibitive ordinances in forty-three of our largest cities would practically remove this national disgrace

PROGRESS IN FOURTEEN YEARS

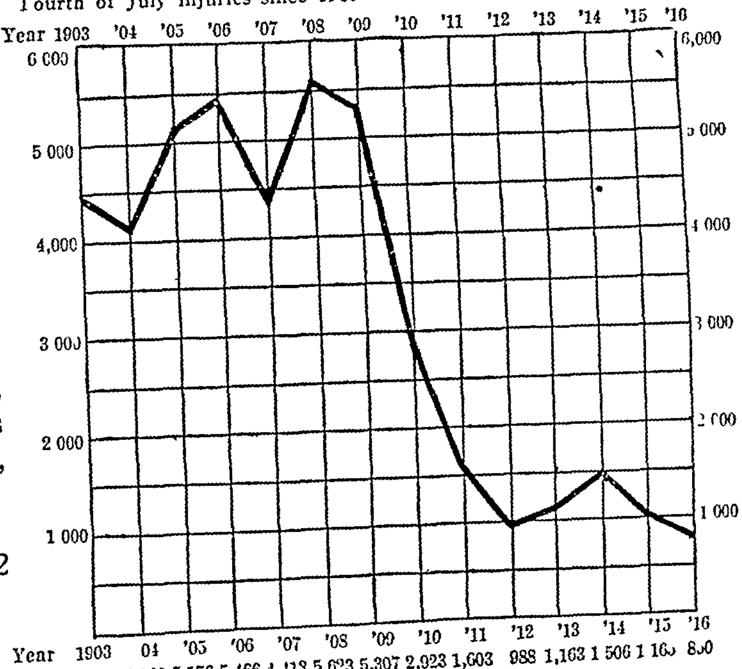
The results of publishing these statistics for fourteen years are graphically shown in the two accompanying charts Chart 1 shows the reductions in the numbers killed The heavy line indicates the numbers killed each year from all causes, the light line shows the numbers of deaths each year from lockjaw Chart 2 shows the totals of those killed and injured for the fourteen years Note that in spite of the publication annually of the awful results of the celebration, the totals continued gradually to increase until 1908, and that the remarkable decrease began in 1909

THE SPREAD OF THE CAMPAIGN

In 1908 another table (Table 8) was added to The Journal's statistics, in which the numbers killed and injured in each of the eighty-four largest cities were shown It was also pointed out—a fact—that the responsibility for these casualties clearly rested with city governments When the 1908 report was published, reprints were circulated far and wide among newspapers and other publications The result was most remarkable Since that time not only did the press of the country generally take up the cause, but also local, state and national organizations and societies became interested They not only argued against the use of fireworks, but, more important, also provided more rational and patriotic means of celebration Vigorous action was taken by city councils, and each year the ordinances are growing more prohibitive All these forces have made most liberal use of The Journal's statistics, even though the source has not always been mentioned The number of deaths has been reduced from 215 to thirty, the

Chart 2—Total Casualties from Fireworks

The dark line shows the annual fluctuation in the total number of Fourth of July injuries since 1903



Year	1903	04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16
Totals	4,449	4,169	5,176	5,466	4 413	5 623	5,307	2,923	1,603	988	1,163	1 506	1 16[illegible]	8[illegible]0

deaths from lockjaw from 125 to none, and the totals of deaths and injuries from 5,460 to 850

The matter is now well in hand, and the annual returns are comparatively insignificant Nevertheless, 850 casualties and thirty deaths are too heavy a price to pay for a continuance of the old-time and out-of-date form of celebration It is time that the more modern "safe and sane" methods should prevail

TABLE 8.—NUMBER REPORTED KILLED AND INJURED IN THE LARGER CITIES DURING TEN YEARS

Marginal No	City	1907		1908		1909		1910		1911		1912		1913		1914		1915		1916		Totals		Marginal No
		Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	
1	New York City	22	422	11	316	7	[illegible]	6	179	3	91	1	[illegible]		[illegible]	1	94		272	1	79	52	2 135	1
2	Chicago	16	171	12	[illegible]		118	4	[illegible]	2	53	2	[illegible]	1	[illegible]	3	18	5	3	1	8	46	639	2
3	Philadelphia	7	248	6	[illegible]	9	[illegible]	4	405		291	2	[illegible]	3	340	4	237	1	280	1	73	37	2 938	3
4	St Louis	3	159	4	259	4	163		44		38		48		72	1	43		47		37	12	910	4
5	Boston	3	59	6	190	5	167		35		3		16	1	15		13		27		21	15	546	5
6	Cleveland	3	63	12	93		4		1		5		1		4		1				1	15	173	6
7	Baltimore		5	1	10		5		6		10		10	1	12		6		10		12	2	95	7
8	Pittsburgh	10	88		30	5	48	6	26	1	25	1	14	1	46	1	11		8		17	25	313	8
9	Detroit	2	46		10	2	46	1	17		18	2	20	1	3		43		6	2	14	10	223	9
10	Buffalo		18	3	11		33	1	13		16		6		16	2	9		1		7	6	130	10
11	San Francisco				11		12		9	1	8		7		9		4		5		9	1	74	11
12	Milwaukee	2	93		70		78	3	112	1	10		34		10		8		9		14	6	437	12
13	Cincinnati	2	89	1	112	3	86	3	49	1	4		21		26	1	4	2	1		4	13	396	13
14	Newark N J	1	[illegible]	2	81	1	[illegible]	1	[illegible]								2	1	1			6	378	14
15	New Orleans		8		4				3		2		2		3		4				7		33	15
16	Washington D C		12		21								2		1		1		1				38	16
17	Los Angeles Calif		35		40		26				4		5		6		1		7		7		131	17
18	Minneapolis Minn		13		10	1	24		20						2		1		1			1	71	18
19	Jersey City N J		31	5	34	1	14	1	44		14		3				2		3		3	7	148	19
20	Kansas City Mo	1	46		55	4	67	1	25		4		1					1				7	198	20
21	Seattle Wash	1	3		1	3	10		7				2		2		1					4	26	21
22	Indianapolis Ind	1	31	1	14	1	35		24		5		6		1		11		10			3	137	22
23	Providence R I		20	1	21		13		10	1	9			2	17		7		1		3	4	101	23
24	Louisville Ky		13		10	1	10	1	13		3		2		2		8		3			2	64	24
25	Rochester N Y		12		10		5		10		4		2		4		8				6		61	25
26	St Paul Minn		20		13		18		12		10		7		2		4		4		3		93	26
27	Denver Colo		8		13		12	1	6		2		7		1		1					1	50	27
28	Portland Ore		2		3		16		13		1		2							1	2	1	39	28
29	Columbus Ohio	5	36		5	1	19				1		1		2				1			6	65	29
30	Toledo Ohio	1	5		8	2	3	1	2		2	1	1		7					1	1	6	29	30
31	Atlanta Ga	1	4		3				5		10		28		4							1	54	31
32	Oakland Calif		9				8		9		1		2						2		1		32	32
33	Worcester Mass	1	6	2	20	1	42		6		1		10		14		3		13	2	13	6	128	33
34	Syracuse N Y		20		14		13		6		1		4		15		6				10		89	34
35	New Haven Conn		2				15				1		6		10		11				1		46	35
36	Birmingham Ala										3												3	36
37	Memphis Tenn		1		3		4		2				2		1								13	37
38	Scranton Pa		5	1	17	1	29		6		10				9	1	15		4		9	3	104	38
39	Richmond Va					1	1										4					1	5	39
40	Paterson N J	1	29	2	31	1	45	1	14		5		2		4						1	5	131	40
41	Omaha Neb		25		10	1	17		17		7	1	2		16		6		1		4	2	105	41
42	Fall River Mass				12		10		1				1				2						35	42
43	Dayton Ohio		11		14		4		2		4		1				1						37	43
44	Grand Rapids Mich		20	1	30		3		17	1	6		9		13		2		8	1		3	108	44
45	Nashville Tenn		2						8		2		10		2								24	45
46	Lowell Mass		23				18			1	3	1								1		3	44	46
47	Cambridge Mass				17						4						4		2		2		29	47
48	Spokane Wash										7		4		8		2		4		2		27	48
49	Bridgeport Conn		1		27		21		4		4		1		3		23		2	1	12	1	98	49
50	Albany N Y	1	24		37		31		11	1	5				4		1		3			2	116	50
51	Hartford Conn		18		18		11		14		1		9		27		3		27		33		161	51
52	Trenton N J		38	1	17	1	58				1				1		1				1	2	117	52
53	New Bedford Mass				3												1				1		5	53
54	Reading Pa		17		13		17	1	3		4		3		21		5			1	13	2	96	54
55	San Antonio Tex				1																		1	55
56	Camden N J		16		29	4	14		6			1					1		2		6	5	74	56
57	Salt Lake City		15		6	2	14	1	4				1		1						1	3	42	57
58	Lynn Mass		3		11	3	16		4				2								1	3	37	58
59	Springfield Mass		21	1	36	1	9	1	2		4				1	1			1		3	4	77	59
60	Wilmington Del	1	14		13	3	9		6		3		5		6		6		1		2	4	65	60
61	Des Moines Iowa	1	31		41		13		23		12				6		6		4			1	136	61
62	Lawrence Mass		11	1		5	22															6	33	62
63	Tacoma Wash	2	4	1	3		3		2				1			1					1	4	14	63
64	Kansas City Kan	1	10		17		33		14	1	5											2	79	64
65	Yonkers N Y		32		5		8				4										3		52	65
66	Houston Tex				1		1																2	66
67	Duluth Minn		13		9	2	10		3		1					1	1					3	37	67
68	St Joseph Mo	1	23	1	41	1	24		11		1						3					8	103	68
69	Somerville Mass						1		2				1				1						5	69
70	Troy N Y			2	18		16	1	8		2		1		1		6					3	52	70
71	Utica N Y		18		10		5		1						2		2			1		1	38	71
72	Waterbury Conn	2	8		14		5		15						1					1	8	4	51	72
73	Schenectady N Y		4		20		8		13	1	7				1		2				1	1	56	73
74	Hoboken N J		1	1	24		7		4				1						1		1	1	39	74
75	Elizabeth N J		43		72		37		15		1												168	75
76	Manchester N H		3		1	1	5						1		1		2					1	13	76
77	Evansville Ind		5		12		6		7		1						9		2				42	77
78	Norfolk Va																1						1	78
79	Wilkes Barre Pa	1		3	38	1	15	2	8		2		5				1		11		20	7	100	79
80	Peoria Ill		8		27	1	22	1	17				2			1	3					3	79	80
81	Erie Pa				1		4		2		3		1		1		3		1				16	81
82	Savannah Ga																							82
83	Harrisburg Pa		23	1	71		22		3		1						1		7			1	128	83
84	Portland Me	1	2				2			1	2				1		1		1			2	9	84
	Totals	94	2 458	83	2 860	80	2 936	43	1 457	16	774	12	522	10	854	18	681	10	806	15	378	381	13 726	
	Totals elsewhere	70	1 791	80	2 600	135	2 155	88	1 335	41	772	29	423	22	309	22	825	20	359	15	472	522	11 042	
	Grand totals	164	4 249	163	5 460	215	5 091	131	2 792	57	1 546	41	945	32	1 163	40	1 506	30	1 165	30	850	903	24 768	

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SATURDAY, AUGUST 26, 1916

FOOD ECONOMICS

The great European conflict has focused attention on problems of food supply and nutrition in ways which would long have remained unconsidered during the less critical conditions of peace The impending necessity of complete self-sufficiency in matters of food supply early compelled Germany to give serious consideration to the situation and to take an inventory of the national food reserves But this was not all It led to a serious scientific study of the requirements of a nation in order that the attempts to meet them might be undertaken on a rational basis With the minimum needs clearly ascertained, the distribution of food could be marshaled so as to prevent distress and promote physiologic efficiency This was the significance of the Eltzbacher[1] monograph, compiled by Germany's foremost students of nutrition, including Zuntz, Rubner, Oppenheimer and Lehmann The problem of feeding a nation was not left solely to the statistical compilations of economists A strong team of physiologic experts was engaged, and their advice was of the greatest help in the hour of national exigency Countries in which highly educated men are slightly esteemed, Lusk writes, would have passed over such advice, "consigning it to the newspaper dunghill of 'highbrow' information, and starved to death in consequence "[2]

There are some lessons from the newly acquired European data which are worth reciting in our own country The estimated actual annual food requirements of 68,000,000 people in Germany are placed at over 56,000,000,000 calories, including 1,605 thousand metric tons of protein[3] The lowest wholesale cost of such a yearly food supply is stupendous, reaching figures aggregating billions of dollars It is not difficult, with the statistics now available, to convert some of these estimates into figures applicable to American conditions Assuming a monthly expenditure of $25 per family of five persons — surely a conservative estimate for these days, even among persons of very limited earnings — if the 100,000,000 inhabitants of the United States lived as the typical poor man's family just cited lived, the cost of food would aggregate $6,000,000,000 a year Furthermore, the expenditure reckoned on the basis of a more liberal allowance for food of greater variety and quality would be far larger Gephart, of the Russell Sage Institute of Pathology, New York, has ascertained the cost of food in a large boarding school in this country to average 13.8 cents a thousand calories Such a dietary, if taken by the inhabitants of the United States, would cost twice what the other allowance totals

A family of five, consisting of two adults and three children, may reasonably be assumed to require between 11,000 and 12,000 calories of food a day About half of this may be made up of the staples, bread, butter, milk and sugar In the retail stores of the poorer districts in our large cities this portion of the allowance, say 6,000 calories, can be purchased for 40 cents, at an average cost of somewhat more than 6 cents a thousand calories, instead of nearly 14 cents, the average cost for the school quoted above If $25 is spent each month for food, 80 cents a day are available, or only about 7 cents for a thousand calories With such narrow margins between food costs and available income among the less well-to-do classes, not to say the poorest classes, how helpful it would be to promote the information that fundamentally good nutrition can be obtained at a reasonable cost in the form of the staples referred to, so that the expenditures for meats and the less common food products could be acquired in accord with incomes, and inessentials omitted without sacrifice of health

The annual consumption of sucrose has reached 85 4 pounds per capita in the United States, a quantity equivalent to 2,000 calories daily for a family of five Lusk remarks that this quantity of sugar costs the nation a million and a half dollars daily, and the rich harvest to be reaped by the substitution, for only a part of this, of saccharin, which has no food fuel value whatever, is obvious Recalling the billions annually spent for food in the United States, Lusk illuminatingly adds that to any man of large affairs the maintenance at Boston of the Nutrition Laboratory of the Carnegie Institution of Washington, with its budget of $60,000 per annum, appeals impressively to the imagination, yet this work is accomplished at an annual expense of a thousandth of 1 per cent of what the American people would pay for food if each family of five had an income of $720 per annum Is it not a little sad, he asks, to think that the expenditure of thousands of millions of dollars annually for food, an expenditure amounting frequently to more than half the income of the poor man, should take place without any real idea as to the nature of foods?

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[1] Eltzbacher, P Die Deutsche Volksernahrung, Brunswick, 1914

[2] Lusk, Graham Food Economics, Jour Washington Acad Sc, 1916, vi, 387

[3] These and many other statistical facts here referred to are taken from the summary by Lusk in an address delivered before the Washington Academy of Sciences, April 14, 1916 (Jour Washington Acad Sc, June 19, 1916)

THE PASTEURIZATION OF MILK

The recent outbreak in an Eastern city, of an epidemic of infectious sore throat, directly traceable to a single milk supply, has again brought up the question of the pasteurization of milk offered for public sale A prominent New York daily newspaper repeats in its editorial columns the often reiterated advice, "Drink no raw milk", the state board of health, in whose jurisdiction the epidemic occurred, is scored because it does not profit by experience and enact an ordinance permanently enforcing pasteurization of all milk sold in that state, inasmuch as the impossibility of protection by dairy inspection alone is established

This sort of publicity directs attention anew to the claims of the advocates of pasteurization The bacteriologist of the Dairy Division of the federal Bureau of Animal Industry has tersely reviewed the present status of the subject in a government bulletin which will be of interest to health officers and medical men as well as dairymen[1] This may be taken as an unbiased, if not a "neutral" summary of the situation It is contended that from a sanitary standpoint the value of pasteurization is of the greatest importance when market milk is under consideration, for when the process is properly performed it affords protection from such pathogenic bacteria as *Bacillus tuberculosis, B typhi, B diphtheriae,* and the dysentery bacillus — and probably from many others, such as the organisms of foot-and-mouth disease, epidemic sore throat, and scarlet fever, which have at times been traced to milk

The milk industry, however, has to meet problems of profitable production as well as hygienic requirements Pasteurization is of value from a commercial standpoint so far as it increases the keeping quality of the milk and prevents financial losses by souring It is today the most available process for the destruction of bacteria in milk on a commercial scale As practiced at the present time — heating to 145 F , and holding at that temperature for thirty minutes, followed by rapid cooling — with reasonable care, pasteurization destroys about 99 per cent of the bacteria , and while it does not prevent the ultimate souring of milk, it does delay the process It can scarcely be an unjustified "fad" that the general tendency in this country today is toward the pasteurization of all market milk, with the exception of certified and inspected milk from tuberculin-tested herds In seven of the very large cities in the United States for which statistics were obtained, Ayers found that far more than 50 per cent of the total milk supply was being pasteurized This result is the outcome of investigation and propaganda of less than a dozen years' duration In the smaller cities the process is far less widely employed, possibly because the safeguarding of the milk supply is a less difficult problem in them We doubt, however, whether the dangers are sufficiently realized in the smaller communities If, as has been estimated, 127,000 people are engaged daily in handling the milk supply of New York City, it is likely that a city of only 50,000 or even less would require a system of inspection of a magnitude quite out of proportion to most of the disadvantages of pasteurization, in order to guarantee a safe milk supply Speaking from a national standpoint, the need of education at present seems to lie not so much in the great centers of population where expert advice and control is being more freely and effectively employed each succeeding year, but rather in the smaller cities The only valid objections to pasteurization, if indeed they are sufficiently tenable to be serious, come from the pediatricians who look with fear on a possible damage to the milk in point of digestibility or liability to the production of infantile scurvy These dangers are now avertable It must never be forgotten, however, that the infant is not the only person whose welfare is concerned in relation to the consumption of milk "For economic reasons, and in recognition of the process as a means of eliminating certain risks which cannot be completely eliminated in any other way, the pasteurization of milk is certain to be the general practice in this country"

A SAFE AND SANE FOURTH

In 1903 The Journal began the collection of statistics regarding deaths and injuries resulting from the use of fireworks in the celebration of the Fourth of July, and for fourteen years has fought for a betterment of conditions In addition to securing data through news-clipping bureaus, blanks were sent to physicians, health officers and hospitals, requesting lists of casualties From the beginning special efforts were made to obtain information as to cases of tetanus resulting from these injuries The tabulated figures of injuries and the enormous proportion of deaths from lockjaw in that first year were appalling In the 1903 report it was shown that 4,449 persons had been injured, and that 466 had died Of those injured, many had lost their sight, had legs, arms or hands blown off, or were otherwise mutilated for life Of those fatally injured, 406, mostly children, died from tetanus, or lockjaw In the report particular attention was called to the fact that the great majority of lockjaw cases had resulted from blank cartridge injuries, and prohibition of their use was urged Special directions were also given regarding the care of all blank cartridge and other puncture wounds, and the early use of tetanus antitoxin as a prophylactic was strongly advocated Reprints of the report were circulated, but not to so great an extent as was done a few years later

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[1] Ayers S H The Present Status of the Pasteurization of Milk Bull 342 (Professional Paper) U S Dept. Agric Washington 1916 from which many of the statements above are taken directly

In the following year a gratifying improvement was noted in the reduction of deaths from tetanus—ninety-one instead of 406 Little or no attention was at first paid to the statistics In spite of the annual publication of the awful results year after year, the number of casualties continued to increase, until in 1908 there were 5,623 accidents, and in 1909 there were 215 deaths, 125 of which were from lockjaw

In 1908, however, in addition to the statistics previously presented, a table was prepared, giving the casualties in eighty-four of the largest cities This showed that the majority of deaths and injuries were clearly due to the lawlessness and disorder permitted in these cities The corollary was also clear that the city governments were responsible, since the annual carnage could be prevented only by restrictive ordinances The pamphlet containing a reprint of the report of 1908 was sent to newspapers throughout the country The response was remarkable The press generally quoted THE JOURNAL's statistics, naturally emphasizing the figures for the local city and state The facts touched local pride Civic and other organizations started campaigns for the suppression of fireworks and the encouragement of a more enlightened celebration City officials were stimulated to action, and in a single year a remarkable diminution of injuries resulted That progress, with slight fluctuations, has continued, until this year not a single case of lockjaw resulted from the celebration, and there were less than one-fifth as many injuries as were reported in 1903

It was a foregone conclusion that, once the public was acquainted with the facts, a change would be demanded It is apparent that "a safe and sane" celebration of our independence will soon become so widespread that there will be neither injuries nor deaths from this needless cause

THE BEHAVIOR OF PHAGOCYTES

In an address to the students of the University of Amsterdam several years ago, Metchnikoff, to whom we owe the fundamental contributions to our knowledge of the relation of phagocytes to disease, remarked

> We are only at the beginning When the physiology of the phagocytes is better understood, methods will be sought to promote the activity of these elements in the fight against microbes, and efforts will be made to protect important cells of the body against phagocytic attack[1]

In these days, when the scientific labors and fascinating theories of this recently deceased biologist are being discussed in popular as well as in professional journals, it may be fitting to refer to some of the more recent contributions to the knowledge of the phagocytes Among them an unusual interest is attached to the investigations at the University of Groningen under the leadership of Hamburger[2]

In continuance of his studies on the effect of salt solutions on various compositions, quantitatively and qualitatively, on the red corpuscles of the blood—studies which served in large measure to introduce physical chemistry into the medical sciences—Hamburger and his collaborators have found that the white cells are likewise subject to chemical and volumetric changes The behavior of phagocytes early engaged their attention, primarily from a purely scientific standpoint, yet many of the discoveries made have an immediate practical significance in relation to bodily welfare and therapeutic procedure The simplest method of investigation has been to transfer the leukocytes to various mediums mixed with very small particles of carbon Under suitable conditions many of these phagocytic cells promptly engulf the foreign particles as they do bacteria The number of cells which take them up in a given period depends on the composition of the mediums, some stimulating and others exhibiting detrimental effects The addition of surprisingly small quantities of acid or salts or other compounds of varied character is frequently very conspicuous in its influence on the intensity of phagocytosis Another plan has been to place under the skin of experimental animals small capillary tubes closed at one end and filled with an extract of bacteria in a solution of sodium chlorid The chemotactic influence of the contents induces phagocytes to enter these tubes The mobility of the cells, and consequently the numbers which migrate, are influenced by the composition of the mediums—in this case the tissue fluids

Hamburger has found that very small quantities of calcium salts increase phagocytic power to a considerable extent not only in the test tube, but also in the body The introduction of small quantities, such as are present in some natural mineral waters, by rectum has been found to promote the motility and chemotaxis of phagocytes The immediate application of this will at once suggest itself Taking it for granted, says Hamburger, that phagocytosis plays a part in the defense against microbes, we may infer from the foregoing that an enrichment of our blood, and through this also of the tissue fluids, with small amounts of calcium, must have a favorable effect on local and other infections

Supporting evidences are not wanting The salts of calcium have been employed with alleged favorable effects in pneumonia, though Lauder Brunton, who championed this therapy, did so on quite different grounds It is said that workers in lime kilns rarely acquire tuberculosis, and in Holland such laborers cover wounds with lime. Iodoform in suitable concentration also promotes phagocytosis, so that Hamburger has ascribed any favorable influence the drug may have in the treatment of wounds and chronic inflammations to its phagocytic rather than any antiseptic virtues. Similarly numerous other substances — benzene, camphor turpentine, alcohol, chloral, fatty acids, and balsam of Peru — all applied in very small doses, showed a stimulating effect on phagocytosis but paralyzed when given in greater concentration. These substances are soluble in fats, hence the hypothesis that slight quantities of them, dissolving in the outer layer of the cell, weaken it and increase its plasticity, whereas, as soon as greater quantities enter the cell, the detrimental effect becomes manifest. Hamburger would thus explain the beneficial effect of turpentine in the treatment of bacterial invasions of the lung and udder in cattle. In the same way, he adds, we can explain the marked effect of camphor treatment in inflammatory processes of the uterus and its adnexa — an effect not understood heretofore. There is, further, the great effect of covering wounds with balsam of Peru and the supposed therapeutic value of inhalations of turpentine vapor in infectious processes of the respiratory organs. It is even not unlikely that the stimulating action which comes into play on phagocytes may also promote the activity of other cells (granulation cells) which take a part in healing processes.

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[1] "Nous ne sommes qu'au debut Lorsqu'on connaitra mieux la physiologie des phagocytes, on cherchera des methodes pour augmenter l'activite de ces elements dans la lutte contre les microbes, et on cherchera d'autres pour preserver contre l'attaque des phagocytes les cellules nobles de notre corps"

[2] Hamburger, H J Physikalisch chemische *Untersuchungen* über Phagozyten Ihre Bedeutung vom allgemein biologischen und pathologischen *Gesichtspunkt*, Wiesbaden, 1912, Verlag von J F Bergmann also articles in the Proceedings Roy Soc Netherlands (Amsterdam) Researches on Phagocytosis, British Med Jour, Jan 8, 1916

It would lead us too far afield to follow the Groningen school into further fascinating and suggestive hypotheses relative to the behavior of phagocytes under influence of a changed environment. Worthy of mention, however, is the indication that like the respiratory center, these blood cells are readily stimulated by weak concentrations of carbon dioxid. We are reminded of the favorable effect of the therapeutic application of venous congestion, as in Bier's hyperemia procedure, in inflammatory processes of microbial nature. Here Hamburger believes that the increasing accumulation of carbon dioxid accelerates phagocytosis. Such are the random suggestions that follow from the pursuit of biologic science primarily for its own sake.

War Wounds of the Jaws.—The Germans realized from the opening of the war the necessity for systematic collaboration between the surgeon and the dental surgeon in treatment of gunshot and shell injuries of the face. They opened a special hospital for this class of cases, and soon increased the number of such institutions. The French were not long behind them, and it is reported that 1,000 dentists are at work in the medical corps of the army. They keep the soldiers' teeth in good condition and help in reconstructing mutilated jaws and mouths. About 500 are with the troops at the front and 500 in the hospitals in the interior. In England no attempt was made to concentrate such cases until July, 1915, and then only one hospital was set apart for them, but now more are being organized. An international gathering was held recently at London under the auspices of the British Dental Association to discuss treatment of war wounds of the jaws, and the necessity for the most skilful treatment available was emphasized anew.

Current Comment

THE PHARMACOLOGY OF NOVOCAIN

Many substitutes for cocain in local anesthesia have been introduced during the past twenty years. In most instances it was soon realized that the disadvantages of the new products outweighed the advantages, or that the newer drugs had only a limited field of usefulness. Novocain was introduced about twelve years ago with the claim that it was from one sixth to one tenth as toxic as cocain. It has been widely used by surgeons and dentists, who have been led to consider it harmless in ordinary doses. Investigators have called attention to an extraordinary dependence of the toxicity on the rate at which the drug enters the blood stream and the concentration of the solutions employed; nevertheless, it has been taught that the toxicity compared to that of cocain was of the order just stated. Hatcher and Eggleston[1] have recently shown that the toxicity of cocain varies widely with different individuals and with the rate of its absorption into the circulation, but that novocain shows far greater variations. There is an essential difference in that while an animal (cats were used mainly) once severely poisoned with cocain does not recover rapidly, the recovery from nonfatal doses of novocain injected intravenously is extraordinarily prompt. The animals frequently become apparently normal within a few minutes after the injection of doses of novocain that caused immediate stoppage of the heart and respiration. Slow and continuous injections of novocain in very large amounts also failed to produce lasting effects, even though the total amount used was ten times as great as that required by rapid injection to cause death. On the other hand, it was found that an animal under the influence of hydrated chloral, though not in any apparent danger from that drug, succumbed to one fourth of the average fatal dose of novocain for a normal animal. This suggests that the cause of death in those cases in which small doses resulted fatally in man lay in a hypersusceptibility of the heart or respiratory center. One animal under the influence of chloral hydrate succumbed to as little as 10 mg. of novocain per kilogram of weight, which corresponds to a dose of 10 grains for man. On the other hand, one of the animals survived a dose of 31 mg. of cocain per kilogram, which is more than three times the amount of novocain required to kill the chloralized animal and about three fourths of the normally fatal dose of that drug. It would seem inaccurate, therefore, to speak of the ratio of toxicity of the two drugs without reference to the mode of administration. This is further accentuated by the results of subcutaneous injections; when novocain is combined with epinephrin, absorption is slow and large doses are borne without permanent injury, but the effects are more prolonged than after the usual intravenous injections because the drug enters the circulation over a much longer period. Biologic tests of defibrinated blood to which novocain had been added showed that the drug was not rendered inactive on standing for a short time. Solutions of novocain become almost inactive when perfused through the liver for an hour or more. The urine of a cat which had received an enormous dose of novocain — a total of 1,000 mg., corresponding to a dose of about 2 ounces for a man — by slow intravenous injection was inactive, showing that little or none of the novocain was excreted unchanged in the urine. The authors express the opinion that novocain has a distinct field of usefulness, but they call attention to the fact that death has followed the clinical use of small doses, and that toxic symptoms of varying degree of severity have been reported by numerous observers. Hence, while novocain is a valuable drug, it is not without its dangers, and the sooner these are understood and the better we are able to guard against them, the more useful the drug will be.

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[1] Hatcher and Eggleston: A Contribution to the Pharmacology of Novocain, Jour. Pharmacol. and Exper. Therap., July, 1916.

THE ETIOLOGY OF INFANTILE PARALYSIS—CHIROPRACTICALLY SPEAKING

Chiropractic, as The Journal has remarked before, is a freak offshoot from osteopathy—an illegitimate offspring of a plebeian cult of aristocratic aspirations. To the chiropractor all diseases are but manifestations of vertebral subluxations. Whether you suffer from soft corns or hardening of the liver the chiropractor finds the cause of your condition in your backbone. Through a somewhat skilfully managed press bureau the "science" and "art" of chiropractic has made a noise altogether disproportionate to its importance. A physician sends us a recent advertisement published in an Indiana country newspaper under the title, "Infantile Paralysis: What Is Said About It by the Chiropractors":

> "Amid so much excitement that is uncertain as to the real cause of infantile paralysis, there is no mistaking the fact that there is a legitimate cause for the malady."

Here the chiropractic delivers a stinging rebuke to those misguided souls who believe the cause of acute poliomyelitis to be illegitimate! Continuing:

> "This disease is caused by a vertebral subluxation, usually the atlas, but may be located any where in the spine which impinges either the spinal cord or nerves leading to it and thus produces inflammation of the anterior horns of the gray matter."

Could anything be simpler? Yes, the remedy! Should your child show symptoms of poliomyelitis—but let the chiropractors speak:

> "If it is found they [children] are suffering from any spinal defect a competent Chiropractor should be called, for only through spinal adjustments can the fault be corrected. Restoration through Chiropractic adjustments is astonishingly rapid when given in the acute or early stages."

Aside from the smile that this example of the cock-sureness of ignorance may provoke there is a certain sardonic humor in this state of affairs. The public gives to individuals who have neither elementary education nor technical training the right to diagnose and treat human ailments. As a result quacks, charlatans and self-deluded ignoramuses take their toll of life and health—and the public pays the bill.

THE LOEWI REACTION FOR PANCREATIC DEFICIENCY

About ten years ago, Loewi of Graz described an interesting physiologic reaction which he proposed to apply in order to differentiate cases of diabetes with pancreatic involvement.[1] He observed that after extirpation of the pancreas in experimental animals the introduction of epinephrin into the conjunctival sac caused a dilation of the pupil — a phenomenon which does not occur in the normal animal. The conclusion was drawn that the removal of the pancreas had caused augmented irritability of the sympathetic system, which is concerned in these pupillary responses; hence it was assumed further that the pancreas normally has the function of inhibiting or depressing the sympathetics. The mydriatic effect of epinephrin applied to the eyes of patients supposed to be suffering from diabetes has been reported by several European observers, and is sometimes spoken of as the "Loewi reaction." Other investigators have reported a failure to obtain the effect described, under conditions of undoubted pancreatic impairment. It is a matter of considerable interest to learn in some more decisive way whether or not the pancreas has any specific relationship to the sympathetic nervous system. So much has been written of late about vagotonia that one quite naturally thinks of the possibilities of "sympathicotonia." An investigation by Hoskins and Gunning[2] at the Northwestern University Medical School on the irritability of the sympathetic motor neurons under a variety of conditions has failed to correlate them in any way with the pancreas. The belief that this organ exerts some subtle depressing influence on the sympathetic nervous system has little if any scientific evidence left to support it.

POLIOMYELITIS VS. OTHER INFECTIOUS DISEASES

Great catastrophes teach great lessons, and the greater the catastrophe the more impressive the lesson. Immediately after a disastrous railroad accident, a shipwreck or a sensational fire, in which lives are lost, action is always taken to safeguard the public against such particular incidents in the future. But a broad application of the lesson is seldom, if ever, made. The lesson of the Slocum fire, with its frightful loss of life, was applied only to safeguarding against a repetition of an identical occurrence in the future; the conditions which caused the disaster of the Eastland, for instance, were not anticipated. The sudden development of the present epidemic of poliomyelitis with its mortality and its train of crippled children has awakened special interest in this disease: all over the country boards of health are realizing their responsibility in regard to it. But it must not be forgotten that this particular epidemic is infinitesimal as compared, either in number or in total mortality, with the old enemies that are always with us. We are reminded of this by the *Survey*, which calls attention to the fact that during May, June and July there were 3,205 cases of poliomyelitis in greater New York, while during the same period there were 9,710 cases of measles The latter, like vice, is with us always, and we have become accustomed to it And yet the total mortality over an extended period from this disease is far greater than that from poliomyelitis Diphtheria, scarlet fever and the ever-present tuberculosis are today hardly given consideration, yet the total mortality from any of these diseases is infinitely greater than that from poliomyelitis, including epidemics We are apt to forget that the latter disease is always with us, and that the present occurrence is merely a "flare-up," just as we have similar exacerbations of the other acute infectious diseases

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[1] Loewi, O.: Arch. f. exper. Path. u. Pharmakol., 1908, lix, 83.

[2] Hoskins, R. G., and Gunning, R. E. L.: Pancreas Deficiency and Vasomotor Irritability, Am. Jour. Physiol., 1916, xli, 79.

PROPHYLAXIS OF INFANTILE PARALYSIS

Early in June it became apparent that New York, and particularly New York City and its environs, were about to undergo a siege with infantile paralysis The defending forces city and state health officers, were marshaled Allied with them were many officers of the United States Public Health Service, private medical agencies and institutions When the defenders began to outline a campaign, the fact became apparent that our knowledge of the mode of infection and the methods of transmission of poliomyelitis are not such as would warrant specific measures directed toward the elimination of the disease Despite the excellent research that has been done, both laboratory and clinical, our knowledge, for practical purposes, is meager We know something of the cause and the means of transmission, but on neither subject is our information even fairly complete Perhaps twenty-five years from now, when these phases are understood, our present prophylactic efforts may appear to have been too troublesome, overstrenuous, or even ill advised We shall recall them with the same feeling as that with which we recall the efforts of twenty-five years ago in connection with typhoid fever, yellow fever or malaria In the light of our present general knowledge of infectious diseases, however, and of our modicum of information concerning poliomyelitis, the measures now being utilized are not only warranted but deserve the most rigid enforcement

Gonorrheal Rheumatism

At the third annual meeting of the Scandinavian Dermatologic Association, held in June at Christiania, Rasch reported his experiences with 216 cases of gonorrheal rheumatism, nearly all in men Prostitutes seem to be practically immune In treatment he relied on large doses of the salicylates, fractioned, daily exercises, moist heat and light massage The exercises are done by the patient himself As a rule the moist heat applications immobilize enough To ward off ankylosis, light massage should be applied as early as possible, for about twenty minutes a day With this treatment recovery was usually complete with free use of the joints Half the patients were dismissed as cured in less than two months, and only fourteen required over three months treatment Boas corroborated his statements as to the efficacy of treatment on these lines which he has applied in large numbers of cases, with and without supplementary vaccine therapy The results with the vaccine therapy were no better than in the cases without it

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC)

ALASKA

Government Health Work in Alaska—With the aid of special appropriations granted by Congress during the past two years the Department of the Interior, through the Bureau of Education has been able to make considerable progress in checking the ravages of disease among the natives of Alaska The government has recently opened a well equipped hospital in Juneau for native patients and small hospitals are maintained at three other centers of native population A number of physicians and nurses have been employed for service in hospitals and in maintaining sanitary conditions in native villages and the teachers of the public schools in Alaska are supplied with medicines and medical books in order to enable them in the absence of a physician, to treat minor ailments

CALIFORNIA

Typhoid in Oil Fields—About 100 cases of typhoid fever have been reported in Taft and Maricopa Dr Frank L Kelly Berkeley and Sanitary Inspector Edward T Ross of the state board of health are in charge of the situation and twelve deputy health officers have been appointed to assist them in their work

Campaign for New Hospital—On August 14 a meeting was held on the roof garden of the San Diego Hotel in the interest of a new hospital for the city of San Diego The Sisters of Mercy who have conducted St Joseph's Sanitarium for twenty-six years have agreed to erect a new hospital on a new site on thoroughly modern lines Dr Paul Wegeforth, San Diego, is secretary of the campaign committee of the hospital

ILLINOIS

Typhoid in Elgin—On August 22 the typhoid cases in Elgin totaled thirty-one Dr A L Mann, city physician reported that the source of the contagion had been discovered in the water used by employees in a large local manufacturing plant Dr E S Godfrey is making an examination for the state board of health

Chicago

Estate of Dr J B Murphy—It is reported that the estate of Dr John B Murphy totaled $1,250,000, of which all but $250,000 is in realty

New Base Hospital Forming—A meeting was held, August 21, to form a base hospital unit, comprising the Augustana St Joseph's and St Mary's hospitals Thirty men from the staffs of the three hospitals attended the meeting The complete staff will include forty-six physicians, fifty nurses and fifty Red Cross assistants The institutions were represented by Drs A J Ochsner, E H Ochsner, Austin A Hayden Charles McKenna, P J H Farrell and S R Pietrowicz

Committee Appointed to Investigate Infantile Paralysis—The commissioner of health and Dr A Augustus O Neill have appointed a committee to undertake research on infantile paralysis The members are Dr M Herzog, chairman and Drs K Meyer, H B Thomas, A Hoyne and A K Armstrong Other physicians have been appointed as an advisory committee At a preliminary meeting it is stated the committee outlined a plan of investigation, and agreed that the work should not proceed until sufficient funds are forthcoming

MARYLAND

Personal—Dr William A Frontz has been commissioned major in the medical corps of the British army and will sail at once to take up work with the Harvard unit——Dr H H Biedler, chief surgeon of the Biedler and Sellman Sanatorium has almost recovered from an illness that confined him to bed at the sanatorium for several weeks——Dr E B Beasley has been sent to New York by the U S P H S, to aid in combating infantile paralysis

Infantile Paralysis—A second case of infantile paralysis has appeared among the colored population——Mayor Preston has suggested the fitting of certain buildings owned by the city as special hospitals for children with infantile paralysis The city already owns a number of buildings that might be fitted up Dr Blake is to find out the cost of equipping them and providing a staff of physicians and nurses ——Mrs William Bauernschmidt, president of the Child's Hospital School, offered the state board of health last week, said the managers were ready to turn the buildings over to the city and state with the understanding that they would defray the cost of transferring the children now there to the Union Protestant Infirmary, and also pay $833 33 per month toward the care and treatment of paralysis patients Mrs Bauernschmidt also said the city and state would be asked to pay for additional physicians and nurses

MASSACHUSETTS

Infirmary Dedicated—The new infirmary of the Medfield State Hospital was dedicated, August 3 The speakers included Lieutenant-Governor Coolidge, Dr Edward H French, superintendent of the hospital Dr George O Clark, Boston, and others

Personal—Dr George M Kline, superintendent of the Danvers Insane Hospital, has been appointed director of the Massachusetts Committee on Mental Diseases ——Dr Charles G Dewey, Dorchester, Boston, has also been appointed a member of the commission ——Dr Lyman A Jones, Swampscott, formerly district health officer, has been appointed chief of the division of hygiene of the state department of health, succeeding Prof Selskar M Gunn

Diphtheria in Massachusetts General Hospital—The Massachusetts General Hospital has been closed to new patients on account of the discovery of thirty cases of diphtheria among the nurses, physicians and ambulance drivers Twenty-seven nurses, two physicians and one ambulance driver have been removed to the contagious department of the City Hospital and to a private hospital The remaining employees and inmates have been examined and cultures have been taken, but no new cases have been discovered

MICHIGAN

Health Board Annex Damaged by Fire—The clinical laboratory of the Detroit Board of Health on Mullett Street was damaged to the extent of about $8,000 by a fire, August 3 The laboratory equipment and many records of the health department were destroyed

Tuberculosis Survey—The tuberculosis survey of the Upper Peninsula is about half completed The remainder of the work will be done before September 16 During the second week in August, Flech, Iron Mountain and Norway were the towns under inspection and in these places tuberculosis clinics were held Thus far twenty-five counties have been gone over by the state board of health tuberculosis survey

Tuberculosis Day—August 10 was celebrated in Michigan as Tuberculosis Day, under the auspices of the Committee on Tuberculosis of the Michigan State Medical Society The governor issued a proclamation requesting physicians of the state to give their services free for the examination of patients supposed to be suffering from tuberculosis Dr Victor C Vaughan, Ann Arbor, chairman of this committee, sent blanks throughout the state for the personal history and physical findings of those who applied for examination

NEW YORK

Isolation Hospitals for Infantile Paralysis—Westchester County has appropriated $30,000 for an isolation hospital at Eastview to care for cases of infantile paralysis in that county On hearing of a case of infantile paralysis at Pocantico Hills, John D Rockefeller has set aside a house on the outskirts of his property to be used as an isolation hospital

Personal—Mr Elmer E Rittenhouse has resigned the presidency of the Life Extension Institute to take a position with the Equitable Life Assurance Society ——Dr Donald B Armstrong has resigned as director of the department of social welfare of the New York Association for Improving the Condition of the Poor to become assistant secretary and director of the community tuberculosis experiment of the National Association for the Study and Prevention of Tuberculosis

New York City

Two New Milk Stations—During the lockout of the garment workers, last m [illegible] Nathan Strauss was induced to undertake to [illegible] rs' babies in Brownsville and Williamsburg districts of Brooklyn with pasteurized milk This need has now passed but the mothers in these districts have made an urgent plea that these stations be made permanent If the demand warrants it these stations will be made permanent

Infantile Paralysis—Up to August 21 there were 7,200 cases with a total of 1,650 deaths In the state outside of the greater city there have been, since last May, 1,239 cases, with a total of 150 deaths The largest number of cases occurring outside of the city are in certain sections of Long Island, where the number of cases in proportion to the population is greater than in the city itself ——A private citizen, whose name has not yet been made public, has given $2,000 and started a movement for a city wide canvass of all persons who have had infantile paralysis for the purpose of obtaining blood to increase the supply of serum A committee has already obtained the names of some 700 persons who have had the disease and will send letters to them asking them to give blood Those who are willing to do so will be asked to go to Willard Parker Hospital, where such a quantity as each individual can spare will be drawn ——A plan of follow-up work has also been matured which is designed to secure proper orthopedic treatment for paralyzed children after their recovery to which many prominent surgeons and philanthropic institutions are lending their cooperation ——The Brace Fund for which the department of health asked has now reached about $11,000, and it has been announced that Acting Mayor Dowling will introduce a resolution before the board of aldermen in September, asking the city to appropriate $20,000 for orthopedic appliances for the victims of poliomyelitis ——It has been definitely decided that the schools will not be opened until September 25, but pupils will be expected to report and register on September 6, 7 and 8 It is believed that no harm can come from this procedure as the board of education says the children will not be allowed to crowd together ——An appeal has been made by the laboratories of the department of health for animals, chiefly household pets, that have become paralyzed The department wishes to use these animals for experimental purposes to determine whether they are sufferers from or "carriers" of infantile paralysis ——The advisory committee of the department of health has decided to begin a study of the condition of the tonsils and adenoids of children suffering from poliomyelitis to determine whether the enlargement or removal of these organs bears any relation to the disease

The Control of Poliomyelitis—The Department of Health of the City of New York has issued a circular of instructions to field workers regarding the procedures for the control of poliomyelitis The incubation period of the disease and the quarantine period have been placed at fourteen days In families where a case of poliomyelitis has occurred, all children under 16, excepting those who have had the disease, are to be quarantined for two weeks after the termination of the case The patient must be quarantined for eight weeks from the onset of the disease, every house must be placarded and all placards dated No case will be left at home unless a physician is in daily and regular attendance, unless the attendant of the patient obeys quarantine regulations and does no housework, marketing or other household duties, unless the patient and attendant have a separate room with the windows screened, unless there is a separate toilet for exclusive use of the family, unless quarantine regulations are strictly observed by the patient and other children in the family and unless the personal and bed linen of the patient are properly disinfected and after the completion of the case renovation of the premises is made Inspectors must visit at once all cases reported by physicians, nurses, social workers and citizens, the janitor or his representative must be notified by the inspector that he will be held personally responsible by the department for keeping quarantined children in the family premises and seeing that placards are not removed, all cases of questionable diagnosis must be seen at once by the borough or chief diagnostician, and spinal puncture made whenever required, full history being recorded on a special card Nurses must visit every case reported, to instruct the family regarding quarantine and every other family in the house that there is a case of the disease in the house that other children of the family will be quarantined and that should they fail to observe quarantine, steps will be taken to enforce quarantine by legal means if necessary The nurse should also instruct regarding home cleanliness, personal hygiene, the danger of infection by flies and any general measures which may be taken to prevent infection and should also report to the branch office, without delay, any suspicious illness of children or any case of poliomyelitis especially no under the care of a physician, the nurse will also repeat the instructions given to the janitor or his representative by the instructor, nurses must visit patients remaining at home at least twice a week and oftener if necessary, and after the completion of the case they will issue renovation notices following these up by visits until complied with Sanitary police officers must visit frequently, daily if necessary premises in which patients have been removed or remained to enforce quarantine and to affix or replace placards, must serve summonses when quarantine regulations are broken and make the necessary appearance in court Various social service organizations are making an intensive house-to house survey in infected districts to instruct families verbally regarding the disease and its prevention by personal and domestic hygiene and to report illness, especially of children and insanitary conditions Visitors employed by three life insurance companies are also distributing literature and reporting illness and insanitary conditions The physicians and nurses supplied by the Rockefeller Foundation under the direction of the department of health follow up the ramifications of all reported cases of poliomyelitis make house-to-house inspection and report suspected cases

NORTH CAROLINA

Sanatorium Opened—The Anson Sanitarium Wadesboro, was formally opened, July 4 with a surgical clinic participated in by a number of Charlotte surgeons and local men of the profession A reception was held later and the community folk attended in large numbers The local staff is composed of Drs Robert D Ross Wadesboro, Edmund S Ashe Wadesboro John E Hart, Deepcreek, James M Dunlap Ansonville, Leonidas C Smith, Polkton, T A Marshall and R L Hardison

National Guard Medical Staff—The medical staff of the North Carolina National Guard lately mustered into the service of the United States is as follows major and chief surgeon, Baxter R Hunter Charlotte, majors Henry I Clark, Scotland Neck James V McGougan, Fayetteville, Abram R Winston, Franklinton, and Francis J Clemenger, Asheville, captains Henry Norris Rutherfordton, Reuben A Campbell, Statesville, Armistead K Tayloe, Washington, Miles B Abernethy, Reidsville, Hodge A Newell, Louisburg James W Tankersley Greensboro, William C Horton, Raleigh and Thomas F Reynolds, Canton and first lieutenants Francis M Davis, Canton, John H Mease Canton, Richard W Spicer Goldsboro William B Hunter, Wilmington John W MacConnel, Davidson Benjamin M Meriwether Asheville, Houston B Hiatt High Point, T B Burress Fairview John E. Ray, Jr., Raleigh, and Raymond A. Pollock, Newbern

OHIO

Hospital Site—An ordinance has been prepared by the health department of Columbus authorizing the purchase of a 9-acre tract of land on Frebis Avenue as a site for the new Isolation Hospital for which bonds of $25,000 were authorized at the election a year ago

Appointments to Staff of Children's Hospital.—Dr Leslie L Bigelow has been appointed chief of staff of the new Children s Hospital in Columbus Twenty other Columbus physicians surgeons and dentists have received appointments Eleven of those appointed are also members of the faculty of the College of Medicine and Dentistry of the Ohio State University

New Laboratories—The Youngstown Hospital has opened a newly equipped and enlarged department of pathology which has been placed under the charge of Dr Charles C Wolferth——Dr John G Frey, city serologist of Cleveland, has established his headquarters in the laboratory adjoining the office of the health commissioner in the city hall and has prepared to make free tests of blood

Personal.—Drs William R Moore, Orland, Llewellyn G Klepinger Dayton and Bernard R LeRoy Athens have passed the Civil Service examination for fourth assistant physician for state institutions——Dr Samuel F Paul has succeeded Dr James C M Floyd resigned, as a member of the board of health of Steubenville——Dr Louis L Syman, Springfield chief surgeon of the Detroit, Toledo and Ironton Railroad will hereafter devote his entire time to the supervision of the medical department of the system looking after not only the sanitary supervision of the road but also the physical condition of the employees——Sergts Lemuel R. Brigman Cleveland and James H West Tiffin, of the Hospital Corps Ohio National Guard, Columbus have been commissioned first lieutenants M C, and assigned to the Eighth Infantry——Dr Clyde C Roller has been appointed city physician of Akron—Dr Louis A Thompson, National Military Home Ohio formerly chief surgeon of the Soldiers' Home Johnson City Tenn, has been transferred to a similar position in the central branch, National Military Home, Ohio——Dr Emery R Hayhurst Columbus, has resigned as chief of the bureau of occupational diseases of the state department of health to accept the assistant professorship of industrial hygiene in the Ohio State University Dr Roscoe P Albaugh succeeds Dr Hayhurst as chief of the bureau of occupational diseases——Dr Edward Perkins Carter of Western Reserve University Cleveland has been given the honorary degree of Master of Arts by Williams College, Williamstown, Mass——Dr Joseph H Grossman Cleveland has been appointed lecturer on diagnosis of tuberculosis in the School for Applied Social Sciences of Western Reserve University

OKLAHOMA

Ruling on Chiropractors—The attorney-general is stated to have ruled that chiropractors must take the examination of the State Board of Medical Examiners if they are doing the work of osteopaths

Personal—Dr Orange W Starr has been appointed city physician of Drumright——Dr James L Shuler, Durant has opened a hospital in that place——Dr Albert S Hagood Durant has been commissioned captain in the National Guard of Oklahoma and assigned to recruiting duty for the Reserve Battalion

CANADA

Infantile Paralysis.—Infantile paralysis is on the increase in Ontario Light cases developed from August 1 to August 15 They are mostly in western Ontario No deaths have been recorded during August During the month of July there were eleven cases and two deaths, in June two cases and no deaths——A number of Ottawa trained nurses who were recently turned back from the American border on account of being contract labor, while enroute to help fight infantile paralysis in New York, have been admitted through a special order issued by Secretary McAdoo——The medical officer of health at Kingston, Ont is asking the Dominion government quarantine officers to increase precautions against the invasion of infantile paralysis from New York state

Canadian Medical Association—The Canadian Medical Association has not met in annual session since 1913 The 1914 meeting which was to have been held in Vancouver, B C under the presidency of Dr Robert E McKechnie, Vancouver was cancelled on account of the war, and so many of the officers and leading members are engaged on active service that it has been held inadvisable to continue the meetings At a meeting, however of the executive council held in Toronto in June, it was felt that the association was being injured by this action, and it was decided to renew the meetings in 1917 at some time and place selected by the executive With so many members away the annual fees have diminished and an effort will be made to secure new members so as to return the association to its former good financial standing During the absence of the secretary-treasurer, Dr William W Francis Montreal with McGill Base Hospital the work of the association has been conducted gratuitously by Dr J W Scane, registrar of the Medical Faculty of McGill University

Personal.—Dr J H Radford has been appointed medical officer of health at Galt, Ont, in succession to the late Dr Thomas W Vardon——Dr George C. Kidd medical superintendent of the Coburg Hospital for the Insane has been transferred to the Brockville Hospital for the Insane, where he will be assistant superintendent——The Military Cross has been conferred on Lieut Peter McGibbon, C A M C Bracebridge, Alta——Drs Eric K Clarke and F F Tisdale house surgeons in the Toronto General Hospital, have joined the staff of a military hospital at Shorncliffe, England——Dr A C Delacroix, assistant resident physician at the Willard Parker Hospital New York, has joined the staff of the Two Hundred and Thirty-Seventh American Legion Battalion at Halifax N S——Capt L D Collin, Winnipeg Man has been promoted to the head of the surgical department of the Laval University Hospital with the rank of major That hospital is now stationed at St Cloud, near Paris France——Capt. Victor McWilliams, Toronto who has returned after a year s service at the front, has joined the C A M C and is now on the staff of the training depot at Camp Borden——Capt Conrad G Geggie, Quebec, has been appointed medical officer of the New Brunswick Highland Battalion He went to the front with the first Canadian overseas force, and will be promoted to the rank of major ——Capt Edwin Douglas, Halifax, N S, who has been medical officer to the fortieth battalion at the front, has been transferred to the staff of Dalhousie Military Hospital, now in France——Col Frederick W Marlow, A D M S, Toronto, has been appointed chief medical inspector of the C E F and will travel from coast to coast inspecting and investigating medical arrangements

GENERAL

Medical Reserve Officers Ordered to Duty—Under special orders, No 181, War Department, August 4, the following officers of the Medical Reserve Corps were ordered on active duty Lieuts Rudolph Matas, New Orleans, Isadore Dyer, New Orleans, Elijah H Siter, Philadelphia, Frederic A Washburn, Boston, and Elliott C Cutler, Boston

Bequests and Donations—The following bequests and donations have recently been announced

Dr Emanuel M Baruch, New York City, a bequest of $10,000, by Lina Matherny, a servant in the employ of Dr Baruch for thirty years

Medical Society of South Carolina, a bequest of $70,000 to be used to build either an annex to the present Riverside Infirmary Building, Charleston, or to enlarge and remodel the present building so that it may conform to the requirements of a modern hospital, St Margaret's Home, Charleston, toward a new hospital at Park View, $10,000, by the will of Mrs Rosa Thompson

Physical Rejections—The percentage of physical rejections after examination for muster into the United States service of the militia organizations of the states in the central department shows that the lowest percentage of physical disqualifications were in Iowa, 8 per cent Illinois follows with 10 per cent, then come Missouri, 12 per cent, Minnesota, 13 per cent, Michigan and Nebraska, each 15 per cent, Kansas, 16 per cent, Wisconsin, 17 per cent, South Dakota, 18 per cent, Indiana, 21 per cent, and Ohio, which is estimated at more than 30 per cent

National Service School—The work of the National Service School for Women at Lake Geneva, Wis, conducted under the direction of the Woman's Section of the Navy League, began August 14 During encampment the following lectures will be delivered August 16, "Cancer and Other Malignancies," by Dr Philip Schuyler Doane, August 18, "Woman's Place in War and Peace," by Dr Ameen U Fareed, August 21, "Aphasia," by Dr Arthur Dean Bevan, August 23, "The Use of Roentgen-Ray Work in Time of War," by Dr Dallas B Phemister, August 25, "Sanitary Field Notes," by Col William Stephenson, M C, U S Army, August 28, "Base Hospital Work," by Dr George G Davis, August 28, "Efficient Women and National Preparedness," by John J Halsey, and August 30, a subject unannounced by Dr Frank Cary, all of Chicago

Amendment to Treasury Decision on Narcotic Law—Under date August 17, the Commissioner of Internal Revenue announces the following amendment to Treasury Decision 2292, as amended by Decision 2323

In entering items calling for narcotic preparations on the order forms issued by the Commissioner of Internal Revenue, in accordance with the provisions of Section 2 of the Act of December 17, 1914, the quantity of narcotic drug to the fluid ounce, where put up in packages of fifteen ounces or less, shall be indicated in ounces, and where put up in packages containing sixteen ounces or more, may be entered in pints, quarts or gallons, provided the number of each, and not the aggregate quantity of these units in a higher unit, is entered on these order forms

Where these order forms call for preparations or remedies in solid, powder, or other than liquid form, the quantity in ounces should be entered thereon, or if in tablet, pill, ampule or suppository form, the units or totals thereof need only be stated The name of the particular narcotic drug in such preparations or remedies, tablets, pills, ampules or suppositories should be entered on these forms

Appointments to the Navy—Surg-Gen William C Braisted, U S Navy, announces that the next examination for appointment in the Medical Corps of the Navy will be held on or about October 23 at Washington, D C, Boston, New York, Philadelphia, Norfolk, Va, Charleston, S C, Great Lakes (Chicago), Ill, Mare Island, Calif, and Puget Sound, Wash The first stage of examination is for appointment as assistant surgeon in the Medical Reserve Corps, and embraces anatomy, physiology, materia medica and therapeutics, general medicine, general surgery and obstetrics Successful candidates are then ordered to attend the Naval Medical School and during this time are on pay with allowances for quarters, heat and light, and at the end of the course, if successful in passing the examination, are commissioned assistant surgeons to fill vacancies Full instructions may be obtained regarding these examinations by addressing the Surgeon-General of the Navy, Navy Department, Washington, D C

Medical Reserve Officers Discharged—By direction of the president the following officers of the Medical Reserve Corps have been honorably discharged from the service of the United States, their services being no longer required Lieuts Gustavus I Hogue, Milwaukee, Wis, Charles A Cattermole, Canon City, Colo, Clarence E Yount, Prescott, Ariz, James F Presnell, Chicago, Frank P Williams, Boston, George A Clotfelter, Hillsboro, Ill, Howard A Grube, Soldiers Home, Mich, Fred A Pittenger, Boise, Idaho, Henry W Burnett, Providence, R I, Charles D Center, Quincy, Ill, Merlon A Webber, Portland, Me, Custis L Hall, Boston, William J Cranston, Augusta, Ga, Frank H Jackson, Houlton, Me, Francis B Johnson, Charleston, S C, Charles A Speissegger, Jr, Charleston, S C, Gerald P Lawrence, Columbus, Ohio, Gilbert E Seaman, Milwaukee, Wis, Luther H Reichelderfer, Washington, D C, Allen J Jervey, Charleston, S C, Harold M Hayes, New York, Charles H Parkes, Chicago, Homer S Warren, Chicago, Eliot Bishop, Brooklyn, Leonard D Frescoln, Philadelphia, William Marshall, Jr, Milford, Del, Henry S Satterlee, New York, Henry T Byford, Chicago, and Bernard J Beuker, Atwood, Mich

Increased Interest in Red Cross—The American Red Cross announces that during the six months ended July 21, its membership has increased from 27,000 to about 210,000, an increase of nearly 800 per cent In the same time the number of Red Cross chapters organized throughout the country increased from 110 to 199 The personnel required for twenty-five base hospitals with 500 beds each for the army has been selected and enrolled from the staff of some of the best hospitals of the country, several naval base hospitals are now being organized, and funds for the purchase of equipment for sixteen of the army base hospitals, which cost $25,000 each, have been subscribed In addition to this work the personnel required for two field columns for transferring sick and wounded from transfer hospitals to Red Cross base hospitals has been selected from the staff of two hospitals of the country and $10,000 has already been subscribed toward the equipment of one of these field columns ——A mobile base hospital has been organized at Barnes Hospital, connected with Washington University, St Louis, at the request of the American Red Cross Dr Fred T Murphy is head director, Dr Malvern B Clopton, chief of the surgical service, Dr Walter Fischel, chief medical officer, Dr Eugene L Opie, chief of laboratory work, and Miss Julia Stimson, head nurse

Opportunities for Young Physicians in the Army Medical Corps—By a recent ruling of the War Department the age limit for entrance to the Medical Corps of the Army has been raised from 30 to 32 years Owing to the increase in the army which became effective, July 1, there are now 200 vacancies

Not only is the age limit raised under the new conditions, but the opportunities for promotion are greatly increased A study of the length of service of the officers of the Medical Corps promoted by the passage of the act increasing the size of the army shows that the junior captain promoted obtained his majority after only nine years in the service, the junior major was promoted to lieutenant-colonel after eighteen years in the corps and the junior lieutenant-colonel became a colonel twenty-seven years after he entered the corps The sequence of nines in these promotions being accidental The maximum pay for major is $4,000 a year, for a lieutenant-colonel $4,500 a year and for colonel $5,000 a year

The Army Medical Corps offers an excellent field for the recent graduate His position is permanent From the outset his pay is $2,000 a year, with quarters or an allowance of $36 a month in lieu thereof, he is also given fuel and light or allowance therefor, when on government duty he receives liberal traveling expenses, he has also a leave allowance of one month per year on full pay His income is not dependent on the caprice of patients The government provides him with all incentives and facilities for study, books, instruments and appliances and encourages him in all ways to improve his opportunities His pay increases 10 per cent every quinquennium for twenty years, and when the time comes for his retirement, he receives three quarters of his pay for the remainder of his life

Full particulars regarding admission to the Medical Corps of the Army and further information will be furnished by the Surgeon General, U S Army, Washington, D C, on application

WAR NOTES

American College Men in Ambulance Corps—Twenty graduates of American universities left Paris for the front, August 16 as members of the newly formed Section 9 of the American Ambulance field service

Typhus Epidemic in Saloniki Region—The *Scientific American* states that "a question frequently asked is why has not the allied army of 600 000 men at Saloniki joined in the general offensive of the Allies A possible answer comes to us from a correspondent, who states that he has recently received a letter from London which states that the inactivity is due to the fact that typhus is epidemic in the entire territory into which these troops would be sent and that until it was under control there would be no forward movement"

Red Cross Shipments to Foreign Countries—The American Red Cross since between Sept 7 1914 and July 1 1916 to the allied powers has made 217 shipments consisting of 32 605 packages which include purchased supplies valued at $366 021 24 and donated supplies designated, amounting to $408 908 68 and undesignated, amounting to $227 091 95 a total of $1,002 021 87 During the same period forty-eight shipments were made to the central powers consisting of 6 667 packages of which the purchased supplies were valued at $71,762 26, the designated donated supplies at $191 519 59 and the undesignated donated supplies at $47,450 51, making a total value of $310 732 36 In addition to these shipments, supplies valued at $110 875 75 were purchased by the American Red Cross and forwarded to France in three shipments Fifty complete hospital tents were also purchased for the French Red Cross at a cost of $8 795 for which the American Red Cross received reimbursement In addition to the listed supplies sent to the central powers there have been shipped by the American Red Cross to the Austrian Red Cross in Vienna, thirty-four cases of antitoxin valued at $131 986 50, and to the German Red Cross at Berlin, thirty-four cases valued at $229 595 60 which were paid for by the Austrian and German Red Cross societies, respectively

Relief of Belgian Children—The Rockefeller Foundation has recently received an appeal for the relief of about 500 children who have been living in the fighting zone in that part of Belgium which has not been occupied by the German forces Arrangements had already been made and money subscribed for the removal of 760 children similarly situated, to the canton of Fribourg, Switzerland, where provision has been made for their protection, maintenance and education The needs of the 500 additional children have overtaxed the resources of the hospitable Swiss and therefore, an appeal is made to America to contribute $73 000 for the first year which will cover the cost of caring for these 500 children The Rockefeller Foundation on July 12 instructed the director of this War Relief Committee to authorize the removal of the children from Belgium, and the carrying out of the plan for their maintenance in Switzerland, and toward the necessary cost for the first year, the Belgian Relief Fund of New York City appropriated $25,000, the New England Belgian Relief Committee has appropriated $5,000 and has undertaken to secure an additional $5,000 and the Refugees' Relief Fund has appropriated $1 000 and agreed to furnish $500 a month Further contributions may be sent to the Belgian Relief Fund 10 Bridge Street, New York City, marked "Belgian Children Fund" or to the New England Belgian Relief Fund, 422 Boylston Street, Boston

OUR TROOPS ON THE BORDER

Inspection of Feet—Maj William W Reno, M C, U S Army, Fort Bliss Texas has been detailed to inspect the feet of the 150,000 militiamen along the Mexican border

Colored Glasses to be Provided for Soldiers—The War Department has informed the American Red Cross that the quartermaster s department will make a gratuitous issue of colored glasses, or goggles to the troops on the border for the protection of eyes from the glare and sand

Base Hospital Enlarged—The base hospital at Fort Bliss Texas which was recently enlarged to accommodate 500 patients, is being still further enlarged so as to double its capacity The local Red Cross society has turned over all its supplies collected in the last three months to Lieut-Col Paul I Straub M C, U S Army, for use of the men at this point

Pennsylvania System Provides for Its Soldiers—Dr Busby of Philadelphia, accompanied by four other physicians of that city representing the Pennsylvania System, held a conference in El Paso July 24, with Gen Charles H Clement, commanding the Pennsylvania division, in regard to the needs of the militiamen who are employees of the Pennsylvania System and to plan for the distribution of a fund of $100 000 subscribed by the railway for the relief of the men and their dependent families

PARIS LETTER

Paris, July 27, 1916

The War

AN ASSOCIATION OF SURGEONS AT THE FRONT

A body has just been organized with the title of Association des medecins du front The intention is to group all those surgeons who have followed the campaigns of 1914, 1915 and 1916 whether they are still with the colors or in civil life The seat of this association is at Bordeaux It is strictly resolved to avoid all intervention, direct or indirect, with military authorities on behalf of its members who, having faithfully observed discipline and rules, expect nothing from favor No speech or discussion on political or religious subjects will be permitted at the meetings The objects of this association are (1) to multiply and strengthen the bonds of friendship and comradeship between the surgeons who have served at the front and to provide an opportunity for the manifestation of these sentiments after the war, (2) to draw up a list of comrades who have died for their country, to honor their memories and to offer to their families the condolences and support of the association, (3) to defend the interests common to all members of the group During the hostilities the association will interest itself in questions of rent, taxes insurance and replacement After the war it will do what is possible to facilitate the reconstitution of their practices by negotiating with colleagues who have continued the exercise of medicine It will assist the younger members to find employment, and it will bring pressure to bear on the authorities that official functions, as vaccination and inspection of assistant children, may be given preferably to those who have seen service, and that in various competitions those who have seen service may have advantages over those who have remained in civil life. Finally, the association will exert itself to help its members who have been mutilated in the course of the war

VOCATIONAL REEDUCATION OF THE MUTILATED

In previous letters were mentioned the first foundations created for the vocational reeducation of the wounded and mutilated Since then a great number of these schools have arisen national, regional, departmental, communal or private, but notwithstanding the considerable sums expended the number of those who have been taught a remunerative trade and thereby rendered definitely capable to support themselves is really very small When one inquires of these schools what are the figures relating to their results, the answer given by many of them is that only a few score of their pupils have received complete training Some even do not go so far as ten, only seven or eight schools run into three figures It is difficult to get the general total, but it is unlikely that it is more than a few thousand The causes of this immense difference between the known wants and the results obtained are doubtless multiple, but in the front rank one is obliged to place the mentality of the pupil himself Too generally he desires at most a little place, a small function and a modest situation It is quite necessary to modify this state of mind In the first place they must be clearly given to understand that they run no risk of a reduction of pension because of reeducation An effort must be made to convince them that they are not definitely worthless and incapable For this purpose, an energetic propaganda is necessary The same difficulty has been felt in other countries, and this moral reeducation of the mutilated has been especially organized The propaganda for this purpose for workmen and agricultural laborers is entrusted to people of their own occupations Technical advisers have been appointed to prove to them that they can assure for themselves a satisfactory future On the other hand, the Commission of the Senate on the Army has approved Mr P Strauss' report on the proposition adopted by the Chamber of Deputies which renders obligatory the vocational reeducation of the mutilated benefiting under the law of military pensions

AMBULANCE TREATMENT OF FIREARM WOUNDS OF BONE SHAFTS

While the question of immediate intervention or abstention for firearm wounds of joints has given rise to important discussions, the corresponding question for lesions of the shaft has been comparatively neglected This renders interesting the communication made to the Societe de chirurgie de Paris by Dr R Picque, hospital surgeon He describes three types of lesions, and on this classification he bases the therapeutic indications (1) lesions from bullets in direct flight at moderate distances, (2) lesions by artillery projectiles or by spent bullets at great distances, (3) lesions from bullets in direct flight or in ricochet at short distances Wounds of the first class are comparatively rare in the present war, and they present themselves in all varieties from simple symmetrical fissures described by Delorme to the most comminuted fracture of the fundamental "butterfly wing" form described by Bornhaupt In such cases, abstention is indicated, and the surgeon who systematically opened up the orifice in the soft tissues in an attempt to remove all the fragments would disturb the long butterfly wing fragments which are well covered with periosteum and scarcely movable Immobilization is more important here than surgical action But this primitive abstention must be accompanied by a continuous vigilance In case infection manifests itself by subacute osteomyelitis or finally by fistulas, the surgical action must be undertaken, the affected area must be thoroughly cleaned, all splinters must be removed, etc Artillery projectiles or spent bullets produce characteristic voluminous irregular and not very profound wounds of the most varied shapes and sizes In this, if splinters are visible, the majority of them will be found movable, hanging merely by fragments of periosteum or contused muscle and themselves seriously affected in their nutrition by the shock of the projectile The remains of the medullary canal frequently contain fragments of projectile, and the marrow is contused The worst kind of infection threatens in such wounds, which often conceal, together with fragments of the projectile, pieces of clothing, of the military booklet or of the identification disk These were the lesions which, at the commencement of the war, produced so large a portion of fatal results The first point in the treatment, therefore, will be to open up the wound for immediate disinfection and to assure drainage The first step here combines the free division of the aponeurosis, hemostasis, the reestablishment of the nervous circuit, resection of contused muscle, and a thorough cleansing out of all interstices in order to remove foreign bodies The latter are generally fragments of clothes at the orifice of entry, and bone splinters at the orifice of exit The second step is the removal of the bony fragments not blind extraction of splinters adherent or not with the periosteum, without regard to topography or size, but careful and methodical subperiosteal removal of fragments in order to provide free drainage for the medullary canal

Trench warfare has increased the frequency of serious injuries due to bullets in ricochet Such projectiles are still possessed of penetrative force superior to that of the majority of shell fragments They carry with them into the wound debris gathered from the various obstacles with which they have come in contact, and in such circumstances when like the bullet S they are of heterogeneous composition, they act like the cruelest of dumdums If they come in contact with the bone, they pulverize it and break themselves into innumerable fragments, thus producing the extreme type of wounds that one reads of as caused by explosive bullets In the immediate neighborhood of the fragments there will be found very few splinters of bone, simply a great loss of substance between two extremities of the fracture But the soft tissue in the neighborhood is filled with fragments of bone and projectiles Such wounds are more menaced with infection than others so largely opened There can be no doubt as to the necessity for intervention in this case It is necessary by free opening and by the use of the curet and forceps to remove from this soft tissue all that one can of the multiple foreign bodies and to bring into good shape the extremities of the fracture The result of this resection is frequently a false joint By applying this method, Picque has been able to reduce greatly the number of amputations for fractures of the shaft caused by firearms In 5,378 cases, he was obliged to perform primary or secondary amputation in only thirty-nine

FRANCE DAY IN GREAT BRITAIN

The French national fete day, July 14, was observed in Great Britain as France's Day for the benefit of the French Red Cross The results were very satisfactory

CANADIAN ASSISTANCE FOR THE FRENCH WOUNDED

The president of the Canadian Red Cross, Mr Marshall, arrived recently in France to distribute material assistance to various works occupying themselves with the welfare of the wounded After coming to an understanding with the president of the Franco-American committee, M Hanotaux, the Canadian Red Cross distributed the following subsidies 50,000 francs ($9,650) to the Societe de secours aux blesses militaires, 50,000 francs to the Association des dames françaises, 50,000 francs to the Union des femmes de France, 50,000 francs to the Federation nationale des mutilés, 50,000 francs to the Oeuvre de secours aux reformes, 50 000 francs to the different organizations for the blind In addition to these gifts of money, the Canadian Red Cross distributed to the French hospitals 5,000 cases of dressings and clothes and fifteen automobile ambulances Again, a new hospital, the Laval Hospital, has been added to the important Canadian and French sanitary section at the hippodrome at St Cloud This is a gift of the Canadian government, which has chosen a staff from among the members of the university founded in 1852 by Mgr de Laval at Montreal This formation includes thirty-seven officers and a staff of 200 volunteers and seventy nurses

Death of Dr Alexandre Layet

The death is announced of Dr Alexandre Layet, formerly professor of hygiene at the Faculte de medecine de Bordeaux, member of the Superior Council of Hygiene, and national correspondent of the Academie de medecine

LONDON LETTER

London, Aug 7, 1916

Sir William Ramsay

The eminent chemist, Sir William Ramsay, has died at the age of 63 He was the nephew of the Scottish geologist, Sir A C Ramsay, and came of a family which had been concerned in chemical processes for seven generations He attended the University of Glasgow, his native city, until 18, and then went to study chemistry under Bunsen at Heidelberg In 1880 he was appointed professor of chemistry at University College, Bristol, and in 1887 he succeeded Williamson at University College, London He is best known for the discovery of the "inert gases" of the atmosphere Taking advantage of the fact that heated magnesium absorbs nitrogen, he treated nitrogen from the air with it, and found that the gas was not wholly absorbed and that the residue was denser than nitrogen prepared by chemical means The inference was that some other constituent was present The same conclusion had been reached by Lord Rayleigh by another method in which the nitrogen was removed by the electric spark The result was that the existence of a new element, argon, was announced by the two investigators jointly to the British Association at Oxford in 1894 Ramsay next proceeded to examine the nitrogen given off by certain minerals, and in one of these, uraninite, he detected helium, a gas which more than a quarter of a century before had been found in the sun by the spectroscope, but which had not previously been known to exist on the earth Three years later he found that the gas which had been called argon was not homogeneous, but contained also three companion gases —neon, krypton and xenon—and thus added three substances to the list of the elements Later helium provided him with another triumph, for in 1903 he and his pupil, Professor Soddy, were able to prove, as had been suggested would be the case in view of the fact that it is constantly found in radioactive minerals, that it is one of the disintegration products of radium and its emanation He soon realized that the study of radium would throw light on the nature of the elements and their transformation into one another He demonstrated that radium was constantly disappearing to reappear in new elemental forms He mapped out the series of elements due to the degradation of radium and thought that in the course of his experiments he had found evidence of similar disintegration of more common elements He stated that he had found traces of lithium in the residues of solutions of copper sulphate and nitrate exposed to radium emanation He did some work on the therapeutic applications of radium He made an exhaustive investigation into the properties of the celebrated Bath waters, and demonstrated that the one thing which distinguished these waters was their remarkable radioactive power He could attach no therapeutic significance to the mere mineral constituents of the waters which were much the same in kind and degree as those found in the London drinking supply He pointed out that radium is best applied for therapeutic purposes in the shape of emanation or niton than as a salt of radium on the ground that in the latter case there is considerable risk of loss of the precious radium

The Annual Meeting of the British Medical Association

The eighty-fourth annual meeting of the British Medical Association has been held in London In consequence of the war, the scientific and social side was entirely dropped and only political matters were discussed Some of these were of great importance The principal one was the position occupied by the physician with reference to the proposed state treatment of venereal diseases As stated in previous letters the government following the advice of the commission appointed to investigate the subject is about to organize laboratory facilities and skilled free treatment, the measures being entrusted to councils of counties and to county boroughs Seventy-five per cent of the cost is to be provided out of the imperial exchequer Clinics are to be established and salvarsan or its substitutes to be provided gratuitously Considerable apprehension was expressed as to this inroad on the work of the general physician It was decided that a deputation should be sent to the local government board to secure a pledge that an order would be issued requiring every local authority to consult with the representative of the local medical profession throughout all stages of the scheme. One representative protested against the publicity which had been given to salvarsan and its substitutes in the recommendation and reports There was no evidence that the drug was the proper treatment of syphilis Mercury was the proper treatment and the profession was confronted by wholesale proposals for treatment by salvarsan Some of the deaths which had occurred were not due to faulty administration, as had been alleged, but to the drug itself

The Cocain Habit Among Soldiers

Among the large number of soldiers invalided and otherwise in this country cases of the cocain habit have attracted notice, and a surreptitious traffic in the drug in saloons and other places has been detected Drastic action has been taken by the government against this scandal The importation of cocain is prohibited except under a license, and it is made an offense to be in possession of the drug except under stated conditions The gift as well as the sale of the drug to the victims of the cocain habit is made an offense Cocain can be supplied only in accordance with a physician s prescription and by a legally qualified pharmacist The prescription must be dated and signed by the physician with his full name and address, and marked with the words 'not to be repeated' If repetition is required this must be endorsed by the physician on the prescription and dated

Substitutes for Cocain in Dentistry

The accidents arising from the use of cocain by the large number of unqualified persons who practice dentistry has led the government to restrict the use of this drug The government has arranged to make available a sufficient supply of novocain for use as a local anesthetic, in place of cocain, by practicing dentists whether registered or unregistered As the supply is not immediately available in the particular forms usually required for dental purposes and three or four weeks may elapse before it can be made available in these forms the government has granted a temporary permit to all persons engaged July 28, 1916, in the bona fide practice of dentistry but not to purchase preparations containing more than 1 per cent of cocain, adapted for use as local anesthetic in connection with dental work, subject to the condition that the preparations are used as local anesthetics in connection with such work and for no other purpose The permit will remain in force until September 15 next After that date it will not be legal for unregistered dentists to continue to use cocain preparations Public notice will be given in good time stating how and where the novocain preparations can be obtained The government calls attention to the fact that eucain is being manufactured on an increasing scale in this country and it is probable that considerable supplies of this drug also will be available shortly to meet the demand for local anesthetics for dental purposes

Physicians Killed in the War

According to the report presented to the British Medical Association more than 400 physicians have lost their lives at the front in the past twelve months

Marriages

William Albert Munci M D Nashwauk Minn to Miss Vendla L Martin of Chicago, at Duluth Minn August 2

Robert W Jenkel M D, West Leesport Pa, to Miss May C Yeiger of Reading Pa at Philadelphia, August 1

William Turner Eikner M D, Sidney Neb to Miss Frances Alice Johnson of Holdrege, Neb, June 12

Brown S McClintic M D Peru, Ind to Miss Eleanor Soulupp of Kansas at Kermanshah Persia June 1

Edward Dewalt Allen M D Hampton Ia, to Miss Helen Thompson of Emporia Kan, in Chicago recently

Robert A Miller M D Beaumont Tex to Miss L K Jones of Nashville Tenn at Beaumont August 4

Ralph Stephen Chappell M D to Miss Helen M Warrum both of Indianapolis, August 12

Deaths

John B Maloney, M D, Key West Fla, University of Pennsylvania Philadelphia 1890, aged 48, a Fellow of the American Medical Association, formerly mayor of Key West, founder of the Louise Maloney Hospital, a member of the board of education for three years, a member of the Florida Medical Examining Board and for three terms president of the Key West Board of Trade and for several years port health officer surgeon-major in the Florida National Guard (retired), local surgeon for the Florida East Coast Railway extension, died in the Kensington Hospital, Philadelphia, August 7

Harry Daingerfield Barnitz, M D, San Antonio, Texas, Georgetown University, Washington, D C., 1880, aged 63, formerly a Fellow of the American Medical Association, a member of the State Medical Association of Texas, formerly president of the Board of Health of San Antonio, formerly president of the West Texas Medical Association and a member of the board of managers of the State Insane Hospital, Texas, acting assistant surgeon U S Army, immediately after his graduation with station at Fort McKinney, Wyo, died at his home August 6

John Alva McCorkle, M D, Brooklyn, University of Michigan Ann Arbor 1873, aged 69 a Fellow of the American Medical Association and New York Academy of Medicine, professor of principles and practice of medicine and clinical medicine in Long Island College Hospital and president of the Long Island College, physician to the Long Island State Hospital visiting physician to the Long Island County Hospital and consulting physician to the Norwegian, Jewish and St John's hospitals, Brooklyn, died in New York City, August 16

John Martin Crawford, M D, Cincinnati, Pulte Medical College Cincinnati, 1879, Miami Medical College, 1881, aged 70 professor of obstetrics, neurology physiology and physical diagnosis in his alma mater from 1881 to 1889, physician to the Cincinnati Home for the Friendless, president of the Western Academy of Medicine in 1888 a banker, United States consul-general to Russia from 1889 to 1894, and since his return a lecturer on the ancient Finns and European and Asiatic Russia, died at his home, August 12, from hemorrhage

John Macauley Eager, M D, Surgeon U S P H S, Naples Italy, College of Physicians and Surgeons in the City of New York, 1888, aged 52, who entered the Public Health Service as assistant surgeon Feb 16 1891, four years later became passed assistant surgeon, and was promoted to surgeon Dec 19 1907, who had been on duty in Italy, in 1910 in connection with the cholera epidemic, and was sent back to Naples for duty in 1912, died in Naples, August 18

Major Robert Newton Winn, Jr, M C, U S Army, Bellevue Hospital Medical College, 1897, aged 43, a Fellow of the American Medical Association, assistant surgeon of volunteers during the Spanish-American War, who entered the Medical Corps of the army in 1900, became captain five years later and major in 1909, chief surgeon of the U S General Hospital Eagle Pass, Texas, died in that institution, August 12 from pneumonia

John Bart Webster, M D, Philadelphia, Medico-Chirurgical College of Philadelphia, 1887, aged 80, a Fellow of the

American Medical Association, who participated in the relief of Lucknow, was clerk of his faculty of the collegiate department of the University of Pennsylvania for many years, and later a practitioner of Atlantic City, died at his home in Philadelphia, August 9, from heat exhaustion

Wentworth Larrabee Hayes, M D, Cambridge, Mass , Tufts College Medical School, Boston, 1900, aged 39, formerly a Fellow of the American Medical Association, a member of the Massachusetts Medical Society, a medical inspector of Cambridge schools and a member of the visiting staff of the Cambridge Hospital, died in South Yarmouth, Mass, August 12, from pneumonia

Alexander Browne, M D, Philadelphia, University of Pennsylvania, Philadelphia, 1867, aged 73, a veteran of the Civil War in which he served as steward-surgeon in the U S Navy and later was ordered to New Orleans during the epidemic of smallpox and yellow fever, who retired from practice about thirty years ago, died suddenly in Shenandoah, Pa, August 10

Albert T Mobley, M D, New Columbia, Ill , Kentucky School of Medicine, Louisville, 1880, aged 70, formerly a Fellow of the American Medical Association, also a druggist, who served in both the army and navy during the Civil War, died in a hospital in St Louis, July 29, after a surgical operation for the relief of disease of the kidney

Hugh L McLauren, M D, Dallas, Texas, Tulane University, New Orleans, 1884, aged 55, a Fellow of the American Medical Association, for two years superintendent of the Mississippi State Sanatorium, Vicksburg, division surgeon to the Texas, New Orleans and Pacific Railroad, died at his home, August 11, from cerebral hemorrhage

Clinton DeWitt VanDyck, M D, New York, Albany (N Y) Medical College, 1879, aged 61, a member of the Medical Society of the State of New York and for twenty-six years medical supervisor for the Metropolitan Life Insurance Company, died in Atlantic City, N J, August 10, from cerebral hemorrhage

Miles C Dunn, M D, Henderson, Ky , University of Louisville, Ky, 1892, aged 52, a member of the Kentucky State Medical Association, a specialist in diseases of the eye, ear, nose and throat, president of the Henderson Board of Health and school board, was shot and killed on the street in Henderson, August 10

James D Weaver, M D, Eatonton, Ga , College of Physicians and Surgeons, Baltimore, 1882, aged 56, a member of the Medical Association of Georgia, a member of the state board of health, who was run over by an automobile in Eatonton, August 4, died a day later as the result of his injuries

William Henry Yeager, M D, Philadelphia, Hahnemann Medical College, Philadelphia, 1900, aged 44, associate professor of therapeutics and clinical medicine in his alma mater, a member of the staff of Hahnemann Hospital, died in that institution, August 4, from appendicitis

Sylvester W Sellew, M D, Oil City, Pa , Homeopathic Hospital College, Cleveland, 1882, aged 59, a member of the Medical Society of the State of Pennsylvania, was accidentally drowned while bathing at Henry's Bend, near Oil City, August 8

Joseph Logue Lockary, M D, Roxbury, Boston, McGill University, Montreal, 1897, aged 44, a Fellow of the American Medical Association and in charge of the Children's Clinic at Tremont, Mass , died at St Stephen, N B, August 13

Wooster Beach, M D, Westchester, N Y , College of Physicians and Surgeons in the City of New York, 1854, aged 84, one of the founders and first president of the Medico-Legal Society of New York, died at his home, August 6

William Gutch Haning, M D, Belleville, Kan , Rush Medical College, 1890, aged 57, formerly a Fellow of the American Medical Association, died at Rochester, Minn, August 8, after an operation for the removal of gallstones

Charles Rideny Sharp, M D, Nashville, Tenn , Universities of Nashville and Tennessee, Nashville, 1911, aged 32, a member of the Tennessee State Medical Association, died at the home of his parents in Nashville, August 4

Henry Cooledge Frost, M D, Buffalo, Homeopathic Hospital College, Cleveland, 1874, aged 67, senior surgeon of the Buffalo Homeopathic Hospital, while taking a trip with his son, died in Montreal, July 25, from nephritis

Girard F Knowles, M D, Manistee, Mich , Hahnemann Medical College, Chicago, 1882, aged 58, formerly a Fellow of the American Medical Association, a member of the Michigan State Medical Society, died at his home, August 4, from anemia

Samuel Ellsworth Yoder, M D, Wymore, Neb , University of Michigan, Ann Arbor, 1889, aged 52, a member of the Nebraska State Medical Association, died in a hospital in Lincoln, August 4, from heart disease

James Edward Leary, M D, Lowell, Mass , College of Physicians and Surgeons, Baltimore, 1894, aged 42, formerly a member of the Massachusetts Medical Society, died at his home, June 11, from heart disease

Oliver Marshall Steadham, M D, Auburn, Ala , Chattanooga (Tenn) Medical College, 1894, a member of the Medical Association of the State of Alabama, died at his home, August 11, from arteriosclerosis

Waldemar Dorfman, M D, New York, University of Berne, Switzerland, 1882, aged 62, for six years a surgeon for the Hamburg-American Steamship Line, died at his home, August 10, from heart disease

Adam J Blessing, M D, Albany, N Y , Albany (N Y) Medical College, 1886, aged 51, a member of the Medical Society of the State of New York, died at his summer home in Sacandaga, N Y, August 6

Solomon Sheridan Owen, M D, Moore, Mont , College of Physicians and Surgeons, Kansas City, Kan, 1904, aged 48, was instantly killed by the overturning of his automobile near Moore, August 6

Eli B Haynes, M D, Marble Rock, Iowa, Vermont Medical College, Woodstock, 1850, aged 89, a pioneer practitioner of Floyd County, Iowa, died at his home in Marble Rock, August 10

Everett P Courtright, M D, Newark, N J , Jefferson Medical College, 1890, aged 47, a member of the Medical Society of New Jersey, died at his home, June 28, from cirrhosis of the liver

Kenneth D Wise, M D, Los Angeles, Jefferson Medical College, 1865, aged 83, a veteran of the Civil War, for forty-four years a practitioner of Los Angeles, died at his home, July 31

George Rauchfuss, M D, New York, College of Physicians and Surgeons in the City of New York, 1895, aged 50, for several years in the naval service, died at his home, July 31

Earl Amzie Stickle, M D, Kenton, Ohio, University of Michigan Homeopathic Medical College, Ann Arbor, 1909, aged 34, died in the Grant Hospital, Columbus, Ohio, July 30

Hezekiah V Brown, M D, Portland, Ind , Starling Medical College, Columbus, 1882, aged 76, a veteran of the Civil War, died at his home, July 28, from cerebral hemorrhage

Andrew L Van Patten, M D, Los Angeles, Hahnemann Medical College, Chicago, 1876, aged 71, formerly of Chicago, died at his home, August 3, from heart disease

Henri Prevost, M D, St Jerome, Que , University of the Victoria College, Coburg, Ont, 1889, aged 53, died at his home, April 21, from malignant disease

Edwin M Orr, Hot Springs, Ark (license, Arkansas, 1903), aged 46, surgeon to a lumber company at Parkin, Ark , died at his home in Hot Springs, August 10

Marion H Dinsmore, M D, Sharpsburg, Pa , Hahnemann Medical College, Philadelphia, 1911, aged 34, died at his home, August 30, from heart disease

David Henry Lancaster, M D, Culloden, Ont , Cleveland University of Medicine and Surgery, 1863, aged 78, died at his home, April 23, from diabetes

Jesse Henry Deer, M D, Zionsville, Ind , Medical College of Indiana, Indianapolis, 1903, died August 2, at Indianapolis, while being taken to a hospital

George Wesley Shaffer, M D, Creamridge, N J , Hahnemann Medical College, Philadelphia, 1877, aged 63, died at his home, about July 30

Christian G Weiss, M D, Indianapolis, Hospital College of Medicine, Louisville, 1895, aged 80, also a druggist, died at his home, August 2

Cary Nelson Dunlap, M D, Middlebrook, Va , College of Physicians and Surgeons, Baltimore, 1893, aged 46, died at his home, August 2

Francis V Carden, M D, Coatesville, Pa , University of Louisville, Ky, 1908, aged 33, died at his home, July 31

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

A RECENT REPORT ON FOODS AND DRUGS

The chief chemist of the Connecticut Agricultural Experiment Station, J. P. Street, calls attention[1] to the fact that now, for the first time, certain manufacturers of food products are beginning to make claims that their output is "rich in vitamins." The billboards and advertising placards as well as circular reading notices, have long expounded the hypothetic virtues of "phosphates" as "brain food" and of other "vitalizing" ingredients in ready-to-serve foods or similar dietary preparations, hence the advent of vitamin into popular knowledge has been accorded a prompt reception. Street's presentation of the present status of the subject seems so reasonable and sane that it deserves to be quoted.

Feeding experiments with 'purified or partly purified' foods, or with artificial mixtures containing all of the *known* ingredients heretofore supposed to be essential for the support of life, have shown that some still unknown substance or substances must be present in a food in order to make it capable of long supporting life. The nature of these substances is at present entirely unknown, their existence being assumed from the effect produced by adding small amounts of extracts of or parts of various vegetable or animal tissues to the above mentioned inefficient diets. Probably the so-called 'vitamines' include a variety of chemical substances which are widely distributed throughout the animal and vegetable tissues. As a consequence nearly all of the unmanipulated food products contain enough of these vitamines to supply the requirements of normal nutrition. •

"The claim that a food is 'rich in vitamines,' even if true, adds little to its value, for, however essential these substances may be, they are so widely distributed among all of the common articles of food that every person who has an ordinary normal diet gets quite enough of them. The phrase does not carry with it the idea of any special process having been used, or even any special food having been selected, but rather that natural, unmanipulated foods are present and that the manufacturer, alert to the advertising value of a new catch phrase, claims for his product a virtue common to the majority of our most familiar foods."

Proprietary infant foods play an important part in the nutrition of the people. A comparison of the composition of a number of widely used brands at an interval of seven years shows that the differences at the two inspection periods have, as a rule, not been great. The different brands, of course, show decided dissimilarities, such as the complete absence or the great abundance of starch, the unlike protein content, and the divergences in the quantity of fat, as well as in the sources of the nutrients in the product as sold. Most of them are, however, not intended for consumption without either some preliminary treatment or modification with milk or other adjuvants. A fair representation of the comparative composition or merits can be made, therefore, only by analyzing the products in the form intended for direct consumption. A comparison made in this way by Street shows divergences as wide as the difference of opinions among pediatricians respecting the ideal food for infants. The claims of the manufacturers are usually less modest. Three products are asserted respectively to exhibit "The nearest approach to mother's milk that can ever be produced and remain permanent,' or the "composition is nearly identical with that of mother's milk," or the "composition shows a close resemblance to mother's milk." An inspection of the composition of feeding mixtures prepared from these three foods has led the chemist to remark that if the manufacturers' claims are correct, human milk in Jersey City, N. J., Battle Creek, Mich., and in Vevey, Switzerland must be an exceedingly variable product.

The drug situation still shows some disconcerting aspects. For example, of twenty-five samples of chlorinated lime (bleaching powder) which, according to the United States Pharmacopeia, should contain "not less than 30 per cent. of available chlorin," only three were found of full strength. Eight contained but traces of available chlorin. This is a dangerous situation when it is recalled that the public as well as the medical profession puts great dependence on the disinfecting powers of this inexpensive material, bleaching powder being commonly regarded as one of the most useful household disinfectants. There is not necessarily any intentional fraud in dispensing an inactive product. Street points out that chlorinated lime deteriorates quickly, especially in containers which are not tightly closed, so that when a deficient sample is found it is difficult to place the responsibility. The original material as it came from the manufacturer might be of inferior quality, the sample might represent stock kept too long on the druggists' shelves, or the deterioration might be due to an improper kind of container. Whatever the cause of the inferiority, the consumer would have placed dependence on a product that could not secure the desired results. Doubtless there is great need, at present, of a suitable container for so useful a product.

The results of the Connecticut inspection show the mercury ointments of the United States Pharmacopeia are often liable to be confused. A request for "mercurial ointment" may bring "blue ointment" or "ointment ammoniated mercury." The necessity for both the strong and the dilute ointments, says Street, has often been questioned. At any rate confusion certainly exists in the minds of many druggists as to the true significance of the names of the three mercury ointments carrying approximately 50, 33.5 and 10 per cent. of the metal. It further seems to be not uncommon to dispense these poisonous ointments without any warning, in the form of a special label, as to the dangerous nature of the product.

The propaganda for reform in proprietary medicines and the enforcement of the laws in relation thereto is beginning to bear fruit in that the presence of dangerous and habit-forming drugs (other than alcohol) appears to be becoming less frequent. The review of the situation in Connecticut is summarized as follows. Of the forty-nine samples examined last year, only ten contained dangerous drugs other than alcohol:

1 acetanilid
1 acetphenetidin
1 arsenic
1 bromids
1 fusel oil
3 lead acetate
1 silver nitrate
1 strychnin

The claims on the labels and in the literature accompanying the medicines, though far from perfect, likewise show an improvement. This is largely due to the Sherley amendment of the federal Food and Drugs Act which prohibits false and fraudulent therapeutic claims. The newspaper advertising of many of these preparations, however, is still viciously bad. That the day of honest advertising is approaching is obvious to any close observer, and no agency is hastening that day so much as the false and dangerous advertisements of "patent medicines."

In recent years considerable suspicion has become attached to the cheapest grades of whisky sold over the bar in our larger cities. An investigation conducted in Connecticut failed to demonstrate the presence of wood alcohol, ether or chloral in any of the large number of samples examined. Almost any alcoholic beverage may be sold under the name of whisky, provided it contains from 45 to 50 per cent. of alcohol derived from grains. It appears from this most recent investigation that the commonest means employed by the compounders and dealers to cheapen their whisky is the addition of water. This is attested by the fact that out of 123 samples of bar whisky, only fifty were of full alcoholic strength. From the standpoint of temperance, says Street, this practice may not be without its advantages, but the commercial fraud is not the less real.

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[1] Street, J. P.: Report of the Connecticut Agricultural Experiment Station, 1915, Part V, Food Products and Drugs.

Correspondence

E Pluribus Unum Forever

To the Editor —Today, when we have so much agitation on the subjects of industrial accident insurance, health insurance of sundry kinds, and all manner of hospital associations, why would it not be a step in advance for the United States government, cooperating with state and counties, to establish a department of public health whereby free medical, surgical and dental care, including hospital service when necessary, would be provided for all the people? I know from personal experience, gained through seven years of service in the mines of Calaveras County, where medical attention was given to all the miners including their families for what seemed to be a nominal fee, that the general health of the community was far above the average of communities where each individual has to pay for this service, obtain it as a gratuity from the medical practitioner, or go to the county hospital

If adequate medical service were provided by the government, the working efficiency of the people could be increased from 15 to 20 per cent All defectives could be given the best possible treatment, deformities corrected, and a large majority of diseases now prevalent could be absolutely eradicated In fact, they, like the dodo bird, would become an extinct curiosity

On the other hand, if medical attention, including its collateral branches, were supplied by the government, the standing and educational requirements of those rendering it and their efficiency could be increased far in excess of the general average of the same service as now rendered If physicians and others employed in this service were required to devote one month each year to special work along their lines, they would be kept up to date and take a greater interest in their work They should also be allowed one month's vacation in which to rest and recuperate, for all work and no play is detrimental to human progress A system of taxation could be arranged whereby this could be accomplished, working no hardships to the masses of people, and at the same time providing for them a health insurance that could not be equaled in any other way

I offer the foregoing suggestions as I believe sincerely in the doctrines of equal rights to all and special privileges to none W C Shipley, M D, Cloverdale, Calif

Federal Aid for Indigent Consumptives

To the Editor —That the tuberculosis problem is one in which the federal government should be deeply interested, no one can dispute I think it is open to question, however, as to how the Kent bill—for which Dr Brown makes a strong plea in his letter to The Journal of August 5—will solve the problem On the other hand, there are certain disadvantages to the measure advocated which must tend to increase, rather than to solve, the various problems to be met

I speak from the point of view of those located at a resort town It is only such who have any idea of the number of tuberculous invalids from all sections of the country—many in advanced stages and insufficiently provided with means—who migrate to the health resort, hoping that a stay of a few months will arrest the progress of the disease It is only those living in resorts who have any idea of the number of these persons who become a burden on the community and must either be supported by the charitable institutions or returned to their homes Now, while at first sight it might seem that the so-called federal subsidy bill would solve the problems connected with the migratory consumptive, I think that a little consideration of the question is enough to convince one that there are certain very decided objections to the plan as outlined in the bill

I should like to point out, as the first result of the passing of this bill, the increased migration of consumptives, any locality tagged with the government seal would have its difficulties added to, not removed And though the bill provides that the individual may not secure federal assistance unless it is shown that he "did not migrate and was not assisted in migration to secure aid under this act," it would be difficult and perplexing to decide just who should be entitled to aid Dr Brown has admitted that, in California, 30 per cent are indigent when they arrive, and 20 per cent become so within a year At any rate, those not eligible for admission to an institution must be either supported or returned to their homes

Again, the government is not doing the state or municipality a favor by permitting application for a subvention, what it is doing, if the subvention be granted, is to permit the quartering of federal or interstate consumptives in institutions intended for use of the local indigent, thus depriving the latter of the full use of institutions which, at best, are able to care for only a small number of the local sick

Further, it does not seem just or reasonable that the local taxpayer, unable as he is to care properly for his own sick, should be compelled, in addition, to contribute one half the support of the migratory cases of tuberculosis

Moreover, the migration of consumptives is only a small part of the tuberculosis problem the bill in no way provides for the most important questions which arise in the case of every tuberculous person discharged from an institution, namely, the questions of proper after-treatment and employment for arrested cases In fact, I can see few virtues to the bill, but several decided disadvantages

We do not need the law If the resolutions of the Executive Committee of the National Association for the Study and Prevention of Tuberculosis expressed last January and confirmed by the board be acted on—resolutions providing for an endorsement of federal participation in the tuberculosis campaign, with the request for a division of tuberculosis in the U S Public Health Service, and the suggestion that an advisory council of the latter, or an independent commission for the study of tuberculosis be appointed and financed by the federal government—we shall have a much better weapon with which to fight tuberculosis than by the passage of the Kent bill Thompson Frazer, M D, Asheville, N C

Dr Lydston vs Jenner Medical College

To the Editor —In the current prospectus of the Jenner Medical College my name appears as a member of the faculty I wish to state that I am not, nor have I ever been, officially connected with the aforesaid school My name, as a faculty member, was used without my knowledge or consent and without any negotiations with the institution bearing on a faculty position My relations with the Jenner Medical College simply consist in my having consented to give a few special lectures on surgical subjects during the coming term

G Frank Lydston, M D, Chicago

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted, on request.

TRANSMISSION OF HEART AND LUNG SOUNDS THROUGH SOLIDS

To the Editor —1 In the *Scientific American* July 15, 1916, is an article entitled "New Apparatus for Internal Diagnosis" It describes the invention of Dr J Glover whereby heart and lung sounds can be read and diagnosed with mathematical accuracy by the fluctuations of the galvanometer Has this invention proved of scientific value?

F W Bremer, M D, Pittsburgh

Answer —A description of the principle of this apparatus will be found in *Comptes rendus de l Academie des sciences,* May 17, 1915 Dr Glover received the Lallemand prize in physiology in 1915 for his investigations along the line of sound conduction through solid mediums An article relative to the clinical application of this instrument was published in the *Bulletin de l'Academie de medecine,* Feb 22, 1916, p 253 and abstracted in The Journal April 8 1916 p 1171 As suggested by our correspondent the most important feature of the instrument is a galvanometer connected with a microphone which is placed in contact with the chest Variations in the intensity of the sounds transmitted through the solid mediums of the thoracic wall cause oscillations in the needle of the galvanometer, and these oscillations can be graphically recorded At the same time they may be heard through a telephone attachment

It is intimated by the author that with this instrument it is possible to diagnose very early pulmonary tuberculosis by characteristic oscillations in the needle of the galvanometer produced primarily by the breath sounds A graphic record of these oscillations can as stated be made

Undoubtedly a method of accurately recording the pulmonary and cardiac sounds in health and disease would be a great advance in diagnostic methods, but this instrument is exceedingly complicated and much work must be done with it before its norms are really established The great value of the electrocardiograph in diagnosis suggests that this instrument may ultimately prove useful, as in some respects they are similar

WORK OF MEDICAL MISSIONARIES

To the Editor —Having an interest in the subject of medical missions in countries outside of the United States I desire to institute a research among the published accounts of the labors of such missionaries Can you give me a list of publications which will serve as a basis for my investigations?

Burton Chance M D Philadelphia

Answer —The following is a list of references on this subject

Bartlett C J Peter Parker the Founder of Modern Medical Missions The Journal Aug 5 1916 p 407

Van Metre P Training of Medical Missionaries The Journal Feb 12 1916 p 529

Arnold H D Preparation of Medical Missionary for his Task abstr The Journal April 22 1916 p 1349

Hoover A R Different Types of Medical Service Called for in the Foreign Field and Personal Qualifications Essential to Success abstr The Journal April 22 1916 p 1349

Speer R E Fundamental Objectives and Purpose of Medical Missionary Work from Standpoint of Missionary Administration abstr, The Journal April 22 1916 p 1350

Allen B Preparation of Women for Medical Mission Service and How it Should be Differentiated if at all from That of Men abstr The Journal April 22 1916 p 1350

Harrison P W Preparation of Medical Missionaries in Addition to their Medical Studies abstr The Journal April 22 1916 p 1350

Medical Missionaries Medical News, The Journal April 29 1916 p 1397

Boyd N W American Presbyterian Mission Canton China Melrose J A Larger Meaning of Medical Missions *Bull Am Acad Med* June 1914

Corner G W Hospital Work of Laborador Mission *Med Hosp* August 1914

Research in Medical Missions editorial The Journal Jan 24 1914 p 305

Van Vloten H Experiences of Medical Missionary in Interior of China *Deutsch med Wchnschr* 1915 Nos 1 and 2

Merrins E M Work of Medical Missionary Association of China Bulkley L C Medical Mission Work in Siam, *Jour sociologic méd* April 1915

Training of Medical Missionaries editorial The Journal Aug 21 1915 p 723

Scharlieb M Care of Health of Married Women Missionaries *Brit Med Jour* May 29 1915

MACEWEN'S SIGN — BIOT'S RESPIRATION — BRUDZINSKI'S SIGN

To the Editor —Please inform me (1) what Macewen's sign of hydrocephalus is 2 What is Biot's type of respiration and what is its connection with infantile paralysis? 3 What is Brudzinski's sign and reflex?

Charles A Sellers M D, Hartford City, Ind

Answer —1 Macewen's sign is a tympanitic note elicited on percussion over the anterior horn of the lateral ventricle Place the bell of the stethoscope on the forehead and percuss over the squamous part of the temporal bone The note occurs in chronic hydrocephalus, in rachitis in infants, and in tuberculous and epidemic cerebrospinal meningitis

2 Biot's respiration is an occasional arrest of respiratory movements from a few seconds up to half a minute It occurs characteristically in intracranial disorders, especially meningitis but has also been observed in other grave disorders It might occur in certain types of infantile paralysis

3 Brudzinski's sign in meningitis is a flexure movement of the ankle knee and hip, when the neck of the patient is bent, also, when passive flexion of the lower limb on one side is made, a similar movement occurs with the other lower limb

Medical Education and State Boards of Registration

COMING EXAMINATIONS

California Los Angeles Oct 3 Sec, Dr Charles B Pinkham, Room 527 Forum Bldg Sacramento

Colorado Denver, Oct 3 Sec, Dr David A Strickler, 612 Empire Bldg Denver

Idaho Wallace Oct 3 Sec, Dr Charles A Dettman Burke

Massachusetts Boston Sept 12 14 Sec, Dr Walter P Bowers, Room 501 No 1 Beacon St, Boston

Minnesota Minneapolis Oct 3 6 Sec, Dr Thomas S McDavitt, 814 Lowry Bldg St Paul

Missouri Kansas City Sept 18 20 Sec, Dr J A B Adcock, State House Jefferson City

Montana Helena Oct 3 Sec, Dr William C Riddell, Helena

New York Albany Buffalo New York and Syracuse Sept, 19 22 Mr Harlan H Horner Chief Examinations Division The University of the State of New York State Department of Education, Albany

Porto Rico San Juan Oct 3 Sec Dr Quevedo Baez San Juan

Massachusetts March Report

Dr Walter P Bowers secretary of the Massachusetts Board of Registration in Medicine reports the oral, practical and written examination held at Boston, March 14-16, 1916 The total number of subjects examined in was 14, total number of questions asked 70 percentage required to pass, 75 The total number of candidates examined was 41, of whom 30 passed, including 2 osteopaths and 11 failed, including 4 osteopaths The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Georgetown University	(1915)	80
George Washington University	(1912)	78 5
American Medical Missionary College, Chicago	(1906)	78 2
Bennett Medical College	(1915)	78
College of Physicians and Surgeons, Baltimore	(1915)	80 2, 83 1
Johns Hopkins University	(1914)	81
University of Maryland	(1915)	77 5
Boston University	(1915)	81
Harvard University (1914) 78 2, 81 (1915) 77 6 82 2	(1916)	84 9
Tufts College Medical School (1914) 76 8	(1915)	75 5 77 2 81 3
University of Michigan Medical School	(1908)	76 5
Univ of Minnesota Coll of Homeo Med and Surg	(1897)	75
Dartmouth Medical School	(1901)	77 6
Long Island College Hospital	(1914)	79 5
University and Bellevue Hosp and Medical Coll	(1914)	80 3
Jefferson Medical College	(1915)	82 2
Woman's Medical College of Pennsylvania	(1914)	81 1
University of Vermont	(1903)	82 2
Royal College of Physicians England	(1911)	79
University of Paris	(1908)	75
FAILED		
Georgetown University	(1910)	68 9
Kentucky School of Medicine	(1905)	*
Maryland Medical College (1912) 69	(1913)	69 7 69 9
College of Physicians and Surgeons Boston	(1911)	69 7
Laval University	(1906)	*

* Did not complete the examination

Missouri March Report

Dr J A B Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at St Louis, March 20-22, 1916 The total number of subjects examined in was 14, total number of questions asked, 100, percentage required to pass, 75 The total number of candidates examined was 21, of whom 17 passed and 4 failed One candidate was granted a reregistration license by examination The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Bennett Medical College	(1914)	75, 85 9
College of Med and Surg Physio Med Chicago	(1911)	77 8
Chicago College of Med and Surg (1915) 78 1	(1916)	75
Rush Medical College	(1915)	84 8
Ensworth Medical College	(1909)	82 1
Kansas City Hahnemann Medical College	(1915)	79 8
Marion Sims Beaumont Medical College	(1903)	75
National University of Arts and Sciences	(1915)	80 1
St Louis College of Physicians and Surgeons	(1906)	75 8*
St Louis University (1915) 82 4	(1916)	84 4
University Medical College Kansas City	(1911)	75 6
Washington University	(1915)	81 4
University of West Tennessee	(1915)	79 7
Dallas Medical College	(1901)	77 9*
FAILED		
St Louis College of Physicians and Surgeons	(1913)	59 1
Meharry Medical College	(1915)	62 7
University of West Tennessee (1914) 64 8	(1915)	64

* Graduation not verified

Book Notices

The Microscopy of Vegetable Foods With Special Reference to the Detection of Adulteration and the Diagnosis of Mixtures By Andrew L Winton, Ph D, with the Collaboration of Dr Josef Moeller, Professor of Pharmacognosy, University of Vienna, and Kate Barber Winton, Ph D, Second Edition Cloth Price, $6 50 Pp 701, with 635 illustrations New York John Wiley & Sons, 1916

The title by no means covers the contents of the book, as the different parts comprise equipment, methods and general principles, grain, its products and impurities, oil seeds and oil cakes, legumes, nuts, fruit and fruit products, vegetables, alkaloidal products and their substitutes, spices and condiments, and commercial starches The present edition, generally speaking, is the same as that published ten years ago, although a considerable number of drawings have been replaced or entirely new ones introduced, and the text of some of the chapters has been partially or wholly revised "Additions have been made to the sections on wheat and flour, a complete revision of such parts of the chapter on oil seeds as treat on mustards, rapes, cruciferous weed seeds, and linseed, a description of the histology of alfalfa with distinctions from red and alsike clover, a revision of the sections on pomes and drupes, with practical hints on the examination of almond pastes, jams preserves and other fruit products, and rewritten descriptions of the cucurbitaceous fruits used as foods and adulterants"

The material is presented in an excellent form, the text and drawings are clear and should be useful even for one who is not particularly familiar with the use of the microscope and microscopic characteristics The book is especially valuable, since the authors have for a great number of years been engaged in practical microscopic work But it would be of still greater value to men working along these lines of microscopic work were it more comprehensive The bibliography of microscopic work done since 1905 is rather incomplete, the literature references up to date being given only in a few chapters Fortunately, this is usually not such a serious drawback in microscopic work, since morphologic or anatomic characteristics are fairly constant However, since the book discusses also the detection of adulteration and diagnosis of mixtures, one misses the mentioning of new adulterants as well as that of improved methods of detection which have been reported in recent literature It is noted further that the authors are still of the same opinion concerning quantitative microscopic analysis as that expressed in the first edition "By microscopic analysis we learn the ingredients, but gain little idea of their proportion" Excellent work has been done in late years on quantitative microscopic analysis, and it might have been well to mention those results, which undoubtedly must be known to the authors No mention has been made of the occurrence and nature of common molds and means for their detection in vegetable products Figure 250, referred to in the discussion of agar agar as showing a number of diatoms, does not represent those which are commonly found in agar agar and which are considered characteristic of this product The chapter on apparatus could well have been considerably extended, so as to include the comparison microscope, an easy means, especially for the untrained analyst, to compare two different objects microscopically at the same time The fluorescence microscope as a means for the detection of cocoa shells in cocoa powder or ergot in flour might also have been mentioned A more complete discussion of microchemical means for the detection and identification of either characteristic plant tissues or bodies in the tissue would have been of great help to the analyst in some of his difficult problems A reference to the progress of microsublimation would probably have been in place, since this is often an easy and quick means to identify certain drugs or to detect extracted vegetable products, for example, tea freed from caffein by extraction

The foregoing suggestions have been made with the desire that they might be considered by the authors in a future edition The present edition is undoubtedly *the best* book on the subject in the English language

Medicolegal

Liability of Physician for Injury to Nurse While Taking Her to Case

(Loftus vs Pelletier (Mass) 111 N E R 712)

The Supreme Judicial Court of Massachusetts sustains exceptions to a verdict ordered for the defendant, and holds that, in accordance with a stipulation of the parties, judgment in the sum of $1,600 must be entered for the plaintiff The court says that the plaintiff, a district nurse, was hired and paid by a women's club to attend patients who could not afford a nurse, when called on to do so by the physician in charge of such a patient She testified that it was "a common thing for the different doctors to take you to their cases when they were making their calls" when the patient was so far out of town as the patient was to whom the defendant was taking her in his automobile when she was injured The patient "was over 2 miles from town" The defendant testified that "It was her (the plaintiff's) duty to go with me on my request" Unfortunately, in this instance, the automobile skidded and turned over, the plaintiff being thrown over the wind shield and injured The mere fact of the car's skidding is not considered evidence of negligence, but it is held that, under all of the circumstances of the case, it was a question for the jury whether the skidding was not caused by the defendant's negligence in driving at a speed of more than 30 miles an hour in going around a sharp curve when the crowned surface of the road was loose and wet The defendant's main defense, however, was that the plaintiff and he (the district nurse and the physician) were engaged in a common enterprise, and that since it has been held that those engaged in a common enterprise are both liable for an accident caused in the carrying out of that enterprise, and that the contributory negligence of one in such a case is to be imputed to the other or others engaged in it, it follows that one of those engaged in the enterprise cannot sue another of them if the one was injured through the negligence of the other But the court does not find it necessary to consider whether it could have been found that the plaintiff and the defendant were engaged in a common enterprise, or whether, if they were, the defendant's contention that neither one could sue the other was well founded The question to be decided was whether it had to be ruled as matter of law that the relation between the plaintiff and the defendant was that of persons engaged in a common enterprise, and the court holds that it could not have been so ruled Furthermore, the two pieces of testimony by the plaintiff and the defendant, taken together, warranted a finding that a right to be transported to the patient was an implied term of the plaintiff's contract of employment when the patient lived some 2 miles out of town, and that under that contract the plaintiff was bound to accept the defendant's automobile as the method of that transportation when it was offered to her From these findings it followed, or at least could have been inferred, that at the time of the accident the plaintiff was being carried under her contract of employment, that is to say, that she was being carried by the defendant for hire

Upholds Requirement of Extra Heavy Plumbing Material

(Kleinhein vs Board of Commissioners of City of Wichita et al (Kan) 157 Pac R 1190)

The Supreme Court of Kansas affirms a judgment in favor of the defendants in this action to restrain the board of commissioners from enforcing a city ordinance requiring waste pipes and fittings and all plumbing brass goods to be extra heavy, no goods of light weight or cast from yellow brass and known to the trade as competition goods to be used This ordinance was passed pursuant to authority contained in a state statute providing that each city with a population of 7,000 or more having a system of water supply or sewerage shall prescribe rules and regulations for the materials, construction and inspection of all plumbing and sewerage, and the board of health or proper authorities shall further provide that no plumbing work shall be done except in case of repairing leaks, without a permit first being issued therefor on such terms and conditions as the city shall prescribe. The court briefly summarizes the evidence for and against the reasonableness of the ordinance. It says that extra grade plumbing goods are all heavier than those designated as 'standard' and are all more expensive. Extra grade brass fixtures are cast from "red brass" or brass in which the copper constituent largely preponderates over the zinc. 'Yellow brass" fixtures are made of drawn or rolled brass, the seams being brazed by electricity. In yellow brass the zinc constituent largely preponderates over the copper. Competition goods are simply goods sold in competition with those of extra grade. There was evidence that standard goods stand the tests of initial inspection as well as those of extra grade, are quite as durable as those of extra grade and consequently are just as sanitary. The advantage in their use is that the builder who must build modestly can do so with satisfaction to himself and safety to the public and at a considerable saving in costs. There was also some evidence tending to show that independent plumbers are not able to procure extra grade material on equal terms with members of the association of master plumbers. Touching the merits of the case, the court's own remarks are few. It says that the plaintiff's claims are supported by high medical authority and quotes an editorial from The Journal of the American Medical Association, Aug. 29, 1914, p. 784. Then it adds that it is just possible that the foregoing views are those of a bacteriologist who is biased somewhat by his specialty and that effective plumbing may produce effects deleterious to health beyond those described. However this may be the court has here a subject open to debate which has been duly considered by the legislature and by the city commissioners, and this court cannot declare as a matter of fact that the statute has no direct or substantial relation to the public health and welfare. This being true the statute is valid. The ordinance obeys the mandate of the statute, and so far as the court can see does no more than carry out the intention of the legislature. This being true, the court cannot set aside the ordinance.

Surgeon Present at Interview Between Others a Competent Witness

(C. H. & D. Ry. Co. v. Gross (Ind.) 111 N. E. R. 653)

The Appellate Court of Indiana, Division No. 2, says that a surgeon who was called as a witness in this personal injury case had been in the service of the defendant company for several years. He selected other surgeons to treat the injuries of plaintiff Gross, and gave them and also nurses general directions to that end, and also occasionally called on the plaintiff personally after he was injured and prescribed for him. Several days after the plaintiff was injured, certain representatives of the defendant company, under arrangements made with and by this surgeon, had an interview with the plaintiff in the reception room of the hospital in which he was a patient for the purpose of ascertaining from him the facts respecting the collision of the trains, and the circumstances under which he was injured. The surgeon went with the company's representatives to the interview, and was present for the double purpose that the representatives might be permitted to talk with the plaintiff, and to see that he was properly cared for while being removed from his ward to the reception room. Although present at the interview, the surgeon did not participate in it. At the trial, the company sought to show by the surgeon what the plaintiff said to its representatives in narrating the events preceding and attending the collision. On objection that the matter was privileged, the trial court excluded the testimony. It did not appear that the surgeon was present on that occasion for the purpose of or preparatory to treating the plaintiff for his injuries, or for any other ailment, or that the information was sought or needful to that end. In fact, it affirmatively appeared that the interview was of an entirely different nature, and for purposes other than those related to the plaintiff's treatment as a patient. Under such circumstances, the evidence should have been heard.

Miscellany

CONFERENCE OF STATE HEALTH OFFICERS WITH UNITED STATES PUBLIC HEALTH SERVICE, ON POLIOMYELITIS

On the call of the surgeon-general of the United States Public Health Service, representatives of thirty-nine states and of the District of Columbia met in Washington, August 17 and 18, to see what could be done toward establishing uniformity with respect to the quarantine restrictions imposed and to be imposed on persons suffering from acute anterior poliomyelitis, persons exposed to that disease, and persons coming from localities in which the disease is prevalent. Representatives of ten railroad companies, one insurance company, and of seven cities were present as guests of the conference.

In discussing the symptomatology of poliomyelitis, Dr. George Draper of New York expressed the opinion that any quarantine based solely on the cases of the disease that show paralysis is without value. The disease is not essentially a paralytic disease, and during the prevalence of the malady every sick child should be presumed to be suffering from poliomyelitis until the contrary is proved. Particular importance is to be attached in the diagnosis of the disease to pain on anterior flexion of the spine. The child tries to avoid any motion or manipulation involving such flexion, and shows evidence of being hurt if it is insisted on.

Dr. C. H. Lavinder of the Public Health Service, in charge of the epidemiologic work of the service in New York, said that in addition to the work incident to such investigations an entomologic survey of the infected area is being made, and paralytic phenomena in animals are being studied. Dr. Lavinder called attention to the importance of uniformity in the methods employed by state health officers and other agencies engaged in the epidemiologic study of this disease, and the conference later adopted certain standard forms which it recommended for this purpose.

Dr. G. W. McCoy, director of the Hygienic Laboratory, Public Health Service, reported that special studies are under way to determine the nature of the paralytic phenomena so often reported as prevailing among domestic animals during outbreaks of poliomyelitis, to determine the susceptibility of domestic animals to poliomyelitis as it occurs in man, and to find if possible, some method whereby early diagnosis will be facilitated.

Dr. Haven Emerson, commissioner of health, New York City, said that in order to determine whether there is any relation between poliomyelitis and the milk supply, and if so what that relation is, an intensive study is being carried on, correlating from all possible standpoints the facts pertaining to the cases in one borough with the facts pertaining to the milk consumed in that borough. An effort is being made to determine whether there is any distinct type of child that is more apt to be attacked than children of other types. The results of different modes of treatment are being studied. Under the direction of Dr. A. H. Doty, and through funds provided by the Rockefeller Foundation, all discoverable exposures to infection and contact cases are being investigated by a corps of physicians and nurses employed for that purpose. The occurrence of secondary cases in households infected by poliomyelitis has thus far been found to be about as frequent as the occurrence of similar cases in scarlet fever.

Dr. Emerson said that the most important measures looking toward the prevention of the spread of poliomyelitis were immediate reporting, prompt diagnosis, and hospitalization. Patients should be put under fly screens as soon as possible. The movements of children should be restricted, and massing of them in parades, on picnics, at the movies, etc., should be avoided. The interest excited by the presence of the disease should be seized on for the more general and effective enforcement of sanitary regulations. New York regulations recognize the incubation period of poliomyelitis as two weeks, and regard the patient as infective for four weeks. Some New York physicians are personally using cleansing nasal sprays, say of normal salt solution, as a routine part of their toilet on leaving hospital wards where there are poliomyelitis patients Leading pediatricians, however, have advised against any effort to popularize the procedure, on the ground that possible traumatism from its use in unskilled hands and the likelihood of the use of the same atomizer or other apparatus by several persons would constitute a danger that would more than offset the possible good No case of poliomyelitis has been traced to any physician or nurse No relation has been discovered between the removal of tonsils and adenoids and the occurrence of poliomyelitis, but it was advised that no such operations be done during the prevalence of the disease, lest dangerous portals for possible infection be thereby opened and the patient be made more susceptible to infection by the loss of blood and the weakness incident to the operation

Dr Wade H Frost of the Public Health Service, who is now engaged in epidemiologic work in New York, called attention to the fact that there is no known cultural method of identifying the organism that causes poliomyelitis It can be recognized only through animal experimentation Monkeys can be infected by the introduction of the virus into the nasal chambers even though no great traumatism be done to the mucous membrane, or by direct inoculation Such methods are, however, too slow to be of much practical value in the recognition of the disease for the purpose of treatment or of quarantine, and they are not available to the average physician or health officer So far as Dr Frost knew there was no recorded case of the accidental dissemination of poliomyelitis among the monkeys in any animal house connected with any bacteriologic laboratory, even though infected animals were present, and no special precautions were taken to prevent the spread of the disease to the other monkeys, some of which might be demonstrated by subsequent inoculation experiments to be susceptible He knew of no case in which an attendant at such an animal house had contracted poliomyelitis from infected monkeys or had been suspected of having carried the disease to others

According to Dr Frost, in the epidemiologic study of an outbreak of poliomyelitis there were ordinarily from 75 to 90 per cent of the recognized cases that could not be traced to any preexisting case, the variations between the extremes stated depending on the character of the evidence that the investigator demanded as proof of such exposure Among persons known to have been exposed, the incidence is relatively small In view of the widespread dissemination of poliomyelitis without known exposure, a large number of carriers must exist if the disease is limited to the human race Insect carriers have not, however, been absolutely excluded Possibly the disease exists among domestic animals, or at least some disease that is due to the same virus, and is spread by direct contact, as with cats and dogs, or by dust or insects, but if this is the case, the disease as it prevails among such animals cannot be ordinarily of a paralytic type

Dr Ernest C Levy, health officer, Richmond, Va, suggested that the endemic form of poliomyelitis might depend on some cause other than that which is responsible for outbreaks of the disease such as that now prevailing, and urged that studies be made to determine whether such is or is not the case

Uniformity of procedure looking toward the prevention of the spread of poliomyelitis from state to state, and from one community to another within the same state, was recommended by the conference, along the following lines

Quarantine by one state against another state, or by one community against another community within the same state, was disapproved, on the ground that the federal government, through the United States Public Health Service, can perform all the duties necessary in interstate relations, and that the state can perform like functions with respect to quarantine between communities within its own borders

All cases of poliomyelitis should be reported immediately to the local health authorities and to the health authorities of the state, and the latter should make weekly reports to the United States Public Health Service The Public Health Service should issue each week a summary of the reports received

A state health authority, believing its territory to be in danger of invasion by poliomyelitis from another state, should call the attention of the United States Public Health Service to the situation, which should thereupon investigate the supposedly dangerous area Should any area be found to constitute a menace to interstate travel, the Public Health Service should define that area, and thereafter the general restrictive measures laid down for the prevention of the spread of the disease should be in force with respect to it Before any person 16 years old or less may leave the restricted area he should provide himself with a health certificate and permit to travel, and notice should be sent by the authority by which such certificate and permit are issued to the state health authority of the state of destination Such health certificates and travel permits should be based on medical inspection and be void unless the journey begins within twenty-four hours after the issue of the permit It is recommended that they be issued without fee They must be signed by an officer of the United States Public Health Service, by the state health officer, or by a person empowered by the state health authority so to do

A person 16 years of age or less who removes from an infected area to another locality should be kept under medical observation daily for two weeks from the date of his health certificate and travel permit

Common carriers should instruct their agents and ticket sellers, when poliomyelitis is unusually prevalent, that travelers with children 16 years of age or less must be provided with health certificates and travel permits

For the local control of poliomyelitis, the conference defined certain minimum requirements Every known or suspected case of the disease should be immediately reported to the local health authority, and if poliomyelitis exists the premises are to be placarded The minimum quarantine period for the patient is six weeks, and even after quarantine is raised he is to be excluded from schools and all public gatherings for two weeks more Any person continuing to reside on the infected premises must remain there until quarantine has been raised, but with the permission of the health officer and after disinfection of person and clothing he may remove therefrom Permission for the removal of children from the infected premises is to be granted, however, only when they are going to premises on which none but adults reside Children so removing must be confined on the premises, in the house, for two weeks from the date of their arrival, and must be kept under observation by the health authorities

Children, and teachers and other persons employed in or about a school building who have been exposed to poliomyelitis, are to be excluded from the building and grounds for two weeks following the last exposure, and until after disinfection of persons and clothing Whenever schools are closed on account of an outbreak of poliomyelitis, children under 16 years of age must be confined on their own premises

If poliomyelitis occurs on premises in which foodstuffs are handled in the course of trade, the removal of such foodstuffs from the infected premises is to be prohibited until after quarantine has been raised, and the premises and their contents, and all utensils connected with the business, have been disinfected

No article whatsoever is to be taken from the infected premises during the period of quarantine Carpets, rugs, curtains, bedding and similar articles from the infected premises are not to be exposed to the open air for airing, sunning, shaking or beating, without the express approval of the health officer Library and school books must be burned Domestic animals which have been in contact with the patient must be subjected to a thorough disinfecting bath before removal from the infected building or apartment, and must thereafter be confined in an outbuilding

The usual provisions for the screening of the sickroom and the disinfection of articles exposed to infection and of excreta are to be followed

The conference recommended that, whenever poliomyelitis is unusually prevalent, assemblages of children in public places be prohibited and that schools be opened only after thorough medical supervision by a health authority When schools have been closed and are to be reopened, beginning should be made with the high schools, and the schools for the lower age groups should be opened only as provision can be made for complete medical examinations Measures to prevent the dissemination of human excreta and other bodily discharges and contamination by them, the suppression of flies, the prohibition of the common drinking cup, and a general educational campaign for cleanliness, with particular instruction of parents and children concerning personal hygiene, especially of the mouth and nose, were recommended by the conference

The epidemic prevalence of poliomyelitis in certain states now was accepted by the conference as an indication of the likelihood of epidemic prevalence next year in states not gravely affected at the present time, and it was recommended that the preventive measures endorsed by the conference be continued in force at least until the incidence of the disease has subsided to or below its usual level

Society Proceedings

COMING MEETINGS

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American Association of Railway Surgeons Chicago Oct 17 19
American Roentgen Ray Society Chicago Sept 27 30
Colorado State Medical Society Glenwood Springs Sept 5 7
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Current Medical Literature

AMERICAN

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American Journal of Insanity, Baltimore

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2 Stage Mad Folk in Shakespeare s Day P Butler New Orleans p 19
3 Intellectual Efficiency in Relation to Insanity A J Rosanoff, Kings Park N Y —p 43
4 Psychiatric Needs of Large Community O Copp Philadelphia —p 79
5 Some Considerations of General Paresis from Histologic Standpoint S T Orton Philadelphia —p 89

American Journal of Medical Sciences, Philadelphia

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6 Coincidence of Latent Syphilis and Diabetes A S Warthin and U F Wilson Ann Arbor Mich —p 157
7 Dermoids of Mediastinum Report of Cases A E Hertzler Kansas City Mo —p 165
8 *Relief of Chronic Obstructive Jaundice by Palliative Operations J F Erdmann and C G Heyd New York —p 174
9 *Wassermann Reaction in Its Relation to Tuberculosis C G Snow and A T Cooper, U S Army —p 185
10 Care of Subacute Yellow Atrophy of Liver A Fraser New York —p 202
11 *Aneurysm of Thoracic Aorta Its Incidence Diagnosis and Prognosis I I Lemann New Orleans —p 210
12 *Unusual Case of So Called Pseudoleukemia (Lymphosarcoma) L M Warfield and H T Kristjanson Milwaukee Wis —p 222
13 Case of Mediastinal Leukosarcomatosis (Sternberg) F P Weber and F Wolf London —p 231
14 *Acute Myeloblastic Leukemia in Its Relation to Primary Anemia Report of Case S W Sappington Philadelphia —p 238
15 Nature of Bactericidal Property of Vaginal Secretion T Harada —p 243
16 Calcium and Magnesium Metabolism in Case of Chronic Gout. J Rosenbloom Pittsburgh —p 256
17 Case of Chronic Family Jaundice I H. Levy and J L. Kantor Syracuse —p 258
18 Auto aerobacterins M G Wohl Omaha —p 262

6 **Coincidence of Syphilis and Diabetes**—Six cases cited by Warthin and Wilson show that a combined interlobular and interacinar type of pancreatitis with loss of the islands of Langerhans is extremely frequently associated with old latent syphilis In the great majority of cases the pancreatitis is localized and patchy in character, and more rarely severe and diffuse Diabetes may be associated with the more marked degrees of syphilitic pancreatitis, and in their necropsy service all of the diabetes cases have been so associated, but a number of cases of syphilitic pancreatitis of similar degree of severity have not presented the clinical symptoms of diabetes It seems very probable therefore, that latent syphilis is the chief factor in the production of the form of pancreatitis most frequently associated with diabetes, but that diabetes is not always coincident with severe degrees of this type of pancreatitis

8 **Chronic Obstructive Jaundice Relieved by Palliative Operations**—The cases cited by Erdmann and Heyd may be epitomized as follows 1 Carcinoma of the duodenum and papilla of Vater, cholecystostomy and posterior gastro-enterostomy, secondary operation, cholecystojejunostomy, recovery 2 Carcinoma of the duodenum, with biliary obstruction, transfusion, posterior gastro-enterostomy and cholecystogastrostomy, recovery 3 Carcinoma of the common duct, cholecystogastrostomy, death 4 Carcinoma of the pancreas, hepaticoduodenostomy, death 5 Carcinoma of pancreas, cholecystocolostomy, recovery 6 Carcinoma of pancreas and ampulla of Vater, posterior gastro-enterostomy, cholecystostomy, recovery, secondary cholecystocolostomy, death 7 Carcinoma of pancreas, hydrops of gallbladder, cholecystostomy, choledochostomy, death The authors maintain that all cases of obstructive jaundice are entitled to operative consideration There is a certain definite percentage of cases that are cured because there has been a mistake in the diagnosis The immediate relief from itching, in addition to the prolongation of life, is an exceptionally strong argument for operation

9 **Wassermann Reaction in Tuberculosis**—As a result of their examination of 290 tuberculous patients, Snow and Cooper are firmly convinced that tuberculosis need not, in the absence of syphilis, present a positive Wassermann reaction The percentage of nonsyphilitic, tuberculous patients whose blood may bind complement with noncholesterinized antigens is so small as to be practically negligible Complete fixation, namely, a strong Wassermann reaction with noncholesterinized antigen, in a tuberculous patient, is as adequate presumptive evidence of syphilis as it is in a non tuberculous The serums of nonsyphilitic tuberculous patients may give partial to complete complement fixation with cholesterinized antigen in about 31 per cent of cases

11 **Aneurysm of Thoracic Aorta**—Lemann emphasizes the fact that if we wait for the complete classical clinical picture of thoracic aneurysm as described in our textbooks, we shall miss the vast majority of cases in which the prognosis of the disease is such as to preclude any aid to the patient Only two phenomena were present in any considerable percentage of the cases, pain and dulness The pain may be substernal, vertebral, may extend down either arm or up the side of the neck to the occiput The pain may be continuous or may occur as typical attacks of angina Percussion seems to yield earlier information of an intrathoracic growth than any other method of physical examination The dulness in Lemann's cases was always outspoken and required no particular method nor manipulation to demonstrate It was so often the first and only phenomenon to direct attention to intrathoracic abnormality that he is convinced that if more attention is paid to it in routine physical examinations many 'latent" aneurysms will be turned to light The abnormal dulness to which attention is called may be found in two locations The first in the region of the manubrium

When an abnormality in the anterior mediastinum exists, the area of relative dulness is converted into one of flatness, and the conditions are reversed so that instead of the manubrium being more resonant than the body of the sternum it is duller In addition to this the limits of the flatness (or dulness) are no longer marked by the sternal border, but extend more or less into the first and second intercostal spaces, according to the size and location of the abnormal solid mass in the mediastinum The second location of abnormal dulness is over the vertebrae Under normal conditions, percussion over the thoracic spine yields a resonant note except over the bodies of the first, second and sometimes the third vertebrae These are dull In cases in which dulness extends lower than the body of the third thoracic vertebra there exists some abnormality in the posterior mediastinum Added significance is lent to this vertebral dulness when there is also paravertebral dulness whether on the one side or the other, but particularly on the left side

12 **So-Called Pseudoleukemia**—The case cited by Warfield and Kristjanson was unusual in that it appeared to be typical lymphosarcoma on first admission On readmission, the blood picture was that of acute lymphatic leukemia and glands removed from the axilla just before death showed a picture indistinguishable from the appearance which the authors believe is typical of Hodgkin's disease

14 **Acute Myeloblastic Leukemia**—Sappington cites a case of grave anemia which presented in the last eight days of life a blood picture of acute myeloblastic leukemia with extraordinary numbers of nucleated red cells

American Journal of Orthopedic Surgery, Boston

August, XIV, No 8

19 Opportunity for Orthopedist in Preventive Medicine Through Educational Work on Posture J E Goldthwait, Boston—p 443
20 *Treatment of Caries of Spine by Bone Transplants, Report of Twenty Three Cases R L John, Philadelphia—p 450
21 *Obstetric Paralysis Orthopedic Problem J W Sever, Boston p 456
22 Presence of Roentgenologic Shadows Associated with Subdeltoid Bursitis, Presence of Similar Shadows in Other Parts of Body J M Berry, Albany, N Y—p 476
23 Certain Aspects of Injuries of Lower Back R Hammond, Providence, R I—p 484

20 **Treatment of Caries of Spine by Bone Transplants**—In the twenty-three cases reported by John an excellent result was obtained in seven cases, moderately good in three cases, poor in one case, indifferent as to operation in eight cases, one patient died as result of operation and not traced or too recent to consider in three cases Of the six patients who died under treatment, one patient died of acute miliary tuberculosis in forty days after operation, one, of ether pneumonia, in forty hours after operation, three patients died of tuberculous meningitis in seventeen days, two months and three months, respectively, and one case of secondary sinus infection twenty-six months after operation John points out that the danger of arousing and disseminating a more or less latent infection by the trauma of the operation is more grave than has been generally conceded Even in those cases in which the operation has been most successful in ankylosing the vertebrae, the good results in several instances have been only local, the disease soon appearing in a new focus In other words, the disease is arrested locally, but not generally

21 **Obstetric Paralysis**—By numerous dissections on infantile cadavers Sever has shown that traction and forcible separation of the head and shoulder puts the upper cords, the fifth and sixth cervical roots of the brachial plexus under dangerous tension Any sudden force applied with the head bent to the side and the shoulder held, would injure these cords Further observation shows that forcible abduction and elevation of the arm and shoulder put the lower cords of the plexus, the eighth cervical and first thoracic, on a stretch, and when much force is applied it may lead to a tear, rupture or other injury to these segments This condition is seen in breech cases, with arm extended It may also follow sudden strain when the *arm is* elevated, such as the so-called "hostler's paralysis," caused by the sudden elevation and strain of the arm, which occurs when a hostler holds a rearing horse With the shoulder held and the head carried to one side with the clavicle intact, considerable force was necessary to injure the plexus The suprascapular nerve always snapped first, apparently for the reason that it had not so much freedom of play as the others *Even* with considerable force, the fifth and sixth nerves could not be completely torn across at Erb's joint, but frayed out inside the sheath, following a partial tearing or rupture of the sheath, first In some cases there could be produced an evulsion from the spinal cord of the fifth and sixth roots The upper arm type of paralysis is much more frequent than the lower *arm type* The prognosis for a useful arm is good in the upper arm type and bad in the lower arm type

Bulletin of Johns Hopkins Hospital, Baltimore

August, XXVII, No 306

24 *Value of Roentgen Ray Examinations in Diagnosis of Cancer of Stomach F H Baetjer and J Friedenwald, Baltimore—p 221
25 Seventy Cases of Brain Tumor G J Heuer and W E Dandy, Baltimore—p 224
26 *Experimental Tuberculous Meningitis C R Austrian, Baltimore—p 237
27 *Alcohol Injection Treatment for Pruritus Ani H B Stone, Baltimore—p 242

24 **Roentgen-Ray Study of Cancer of Stomach**—Baetjer and Friedenwald selected fifty consecutive cases, including those only concerning which they could feel confident of the correctness of the diagnosis Of these, the growth was located in thirty-four instances about the pylorus, in nine it involved the body of the stomach without interfering with the orifices, and in seven the cardia was involved Of the fifty cases, the gastric secretion was obtained in forty-six There was a *normal* acidity in four instances, a hypochlorhydria or an absence of acid in thirty-six instances, and a hyperchlorhydria in six instances In the thirty-six cases showing a hypochlorhydria, lactic acid was present in twenty-eight instances, and the Oppler-Boas bacillus in twenty-four Occult blood was present in the stools in forty-two of all the cases A palpable tumor was observed in thirty-four, dysphagia in seven, pain was present in forty-nine, vomiting in forty-four, gastric hemorrhage in fourteen, melena in eight, occult blood in forty-six, dilatation of the stomach in twenty-four cases The Roentgen ray gave positive evidence of disease in forty-six instances, of which four were early cases and forty-two were late cases In two of the four early cases the roentgenogram gave a positive diagnosis of carcinoma In the other two, however, an ulcerative lesion was found which was thought to be benign The Roentgen-ray evidence, then, was positive in forty-two of the late cases It was positive, so far as the lesion was concerned, in all of the cases, but positive in only 95 per cent of the cases as regards the actual diagnosis of carcinoma In the early cases the Roentgen ray showed a lesion in all, in two of them, however, it was thought to be benign, but exploration proved the condition malignant This method of examination, in the authors' experience, possesses about the same diagnostic value as any of the other early signs of this disease, when taken alone, but in conjunction with the clinical evidence a positive diagnosis can almost always be made

26 **Experimental Tuberculous Meningitis**—Thirty-five rabbits were utilized by Austrian in making his observations Twenty received inoculations of the bovine type of tubercle bacilli, and fifteen were injected with bacilli of the human type The growth of a culture two weeks old was suspended in 0 85 per cent salt solution The resulting suspension was then diluted with salt solution to the approximate density of a 0 05 per cent solution of lecithin in 0 85 per cent salt solution From 1 0 to 1 5 c c of such a suspension were slowly injected with very little pressure into the spinal canal, either through a needle inserted into the canal in the lower lumbar region, or into the cranial cavity according to the procedure of Manwaring These experiments demonstrated that the injection of tubercle bacilli into the spinal canal of rabbits caused the development of meningitis The clinical syndrome produced was definite, and the symptoms were typically those of meningeal inflammation The signs most constantly noted were dulness and coma, or restlessness, excitability and hyperesthesia to touch and light, anisocoria, paralyses, muscular hypertonicity, even opisthotonos It is suggested that the ready production of meningitis in rabbits, by the intraspinous injection of infectious material might be used to identify the nature of a meningeal infection in man It would be a simple procedure to introduce into the spinal canal of a rabbit 1 0 to 2 0 c c of the spinal fluid of a patient thought to have tuberculous meningitis, and in a few days examina-

tion of the rabbit's meninges might give evidence of the tuberculous nature of the patient's disease

27 **Alcohol Injection Treatment for Pruritus Ani**—The success of alcohol injections for producing localized lasting anesthesia, in facial and other forms of neuralgia, suggested to Stone the application of the same principle to the abolition of unpleasant sensations from the anal and perineal regions The method has been tried in seventeen cases There is not much pain associated with the injection There is some soreness during the first twenty-four hours, after which the only subjective sensation remarked is numbness The itching is immediately abolished and the area injected is largely or completely anesthetic No case so far has shown the slightest evidence of disturbance in the action of the sphincter One patient has returned for a second injection, eight months after the first, for a recurrence of itching The area in which the itching is complained of is carefully noted Under general or local anesthesia, the injection is then made so that this whole area is anesthetized The needle is carried entirely through the skin vertically and then is inclined sharply to the side so that it lies nearly parallel to the skin surface This method accomplishes practically the same thing as the operative treatment for pruritus, and is indicated in those cases of great intensity in which the usual measures have failed

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92 *Clinical Value of Various Digitalis Drugs and Preparations J T Halsey New Orleans —p 677
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98 Real Value of Climate C M Hendricks El Paso Texas —p 703
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110 Harelip and Cleft Palate T E Carmody, Denver —p 744
111 Medical Trust I W Cooper, Newton, Miss —p 749

91 **Study of Spartein Sulphate**—From Zeigler's observations it appears that spartein is not toxic to the frog The heart is slowed and weakened by a depressant action on the heart muscle and by a stimulation of the vagus endings Spartein slows the turtle's heart by stimulation of the vagus endings and by a depression of the heart muscles Spartein slows the heart of the rabbit It slows the respiration, decreases the flow of urine, and causes a fall in blood pressure Spartein causes a preliminary rise of blood pressure in the dog, followed by a fall The fall was not so marked when small doses were given The kidney oncometer shows a decrease in volume in a majority of the experiments There is a slight increase in urine flow with the rise and the first fall The experiments did not prove conclusively the cause of the rise in blood pressure, but the results obtained with the kidney oncometer tend to show that it is due to a vasoconstrictor action The fall is due to stimulation of the vagus This is proved by first injection of atropin and afterward by spartein Atropin seems to increase the toxicity of spartein

92 **Clinical Study of Various Digitalis Drugs**—The discussion of the relative value of the various drugs making up this group is started by Halsey by the statement that, from the standpoint of the clinician, they differ from each other mainly in the rate and certainty with which they are absorbed and excreted and in their local action before absorption Clinically there appear to be no qualitative differences of practical significance in their all important actions on the circulation And all who have sufficiently investigated their clinical effects have reached the conclusion that once it has been absorbed in sufficient amounts, digitalis produces all the desirable effects which may be produced by any of the others Further, it has been established that, contrary to very generally held views, digitalis is absorbed more rapidly and certainly and is less irritant to the stomach than any of its congeners Many of the older textbooks (and some of the newer ones) state that, as strophanthus is absorbed more rapidly and is less irritant to the stomach, it is to be preferred to digitalis where prompt action is desirable or where the digestion is disturbed The real facts, Halsey says, are directly opposed to this There is but one way to give strophanthus and that is intravenously, using, if it be obtainable, either the crystalline strophanthin or ouabain in dosage not to exceed one half of a milligram (1/120 of a grain), reserving such use of it for cases urgently needing a "digitalis" effect, and never giving it, except in still smaller amounts, to patients who have been taking digitalis or any of this group in the recent past This dose may be repeated, if needed, in eighteen to twenty-four hours Its effects are usually apparent in fifteen to thirty minutes and persist for twenty-four hours Used in properly chosen cases and in proper doses, the prompt and useful effects of this drug are among the most gratifying In regard to the clinical value of apocynum and squill Halsey states positively that he has never seen either of these drugs do good in any case in which digitalis had failed after a fair trial They have no advantages under any clinical conditions over a good preparation of digitalis

As to digitalis Halsey prefers the tincture For various widely advertised proprietary digitalis preparations Halsey claims that a number of extravagant and false or misleading claims are made Among the commonest of these is the claim that the preparation in question is free from cumulative action Any preparation of digitalis free from cumulative action is also without therapeutic value In digipuratum the digitalis active principles are present in a form in which they are insoluble in the stomach Consequently they do not irritate the gastric mucosa, although after absorption they, like all digitalis bodies, stimulate the emetic center and consequently can and do cause vomiting Digipuratum is, however, a preparation of very uniform strength, and were it not for its high cost Halsey says he would never use any other for oral administration Digitalin, as commonly used, is the so-called digitalin germanicum, which is a mixture of varied composition and of uncertain strength Different samples vary in strength so that some are more than twice as powerful as others One sixtieth of a grain of this preparation is equal in therapeutic activity to from 3 to 5 minims of an average tincture of digitalis

99 Abstracted in The Journal, Dec 11, 1915, p 2118

Surgery, Gynecology and Obstetrics, Chicago

August, XXIII No 2

112 Bone and Joint Disease in Relation to Typhoid J B Murphy, Chicago —p 119
113 *Primary Treatment of Wounds in Civil Practice M F Porter, Fort Wayne, Ind —p 144
114 Separation of Lower Femoral Epiphysis, Report of Two Cases W R MacAusland, Boston —p 147
115 Indications For and Results of Cerebral and Cerebellar Decompression in Acute and Chronic Brain Disease C A Elsberg, New York —p 153
116 *Transplantation of Free Flaps of Fat A B Kanavel, Chicago —p 163
117 Peripenic Muscle, Some Observations on Anatomy of Phimosis G Jefferson, Victoria, B C —p 177
118 Gas Bacillus Infection, Surgical Bacteriology J C Bloodgood, Baltimore —p 182
119 Beginnings of Birth Control Movement J A Field, Chicago —p 185
*120 Some Practical Aspects of Birth Control R S Yarros, Chicago —p 188
121 Therapeutic Value of Radium in Pelvic Cancers H Schmitz, Chicago —p 191
122 Simple Sterilization of Women by Cautery Stricture at Intra Uterine Tubal Openings, Compared with Other Methods R L Dickinson, Brooklyn —p 203
123 *Genital Elephantiasis Following Extirpation of Inguinal Glands J T Windell, Louisville —p 214
124 *Pseudomyxomatous Cysts of Appendix and Ruptured Pseudo mucinous Ovarian Cyst F W Bailey, St Louis —p 219
125 Diathermy in Malignant Tumors of Bladder L E Schmidt and G Kolischer, Chicago —p 223
126 *Simple Technic for Resection of Prolapsed Rectum G W Brock, Atlanta —p 225
127 Uncomplicated and Convenient Intestinal Anastomosis Clamp J R Eastman, Indianapolis —p 225
128 Use of Fat Transplantation in Kidney and Bladder Surgery G Kolischer, Chicago —p 227
129 Simple Mechanotherapeutic Apparatus for Military Hospitals J M Flint, New Haven, Conn

113 **Treatment of Wounds in Civil Practice**—Porter says that in his work in cleansing wounds and the areas immediately surrounding them, gauze has largely replaced the brush and curet, time, patience and care have supplanted vigor, and strength in antiseptic solutions has been abandoned in favor of quantity Even where there is strong reason for believing that foreign bodies are imbedded and are likely to cause trouble, he says, it will be better to allow them to remain at the primary dressing and await until Nature has had a chance to complete her defenses before attempting their removal To postpone amputation until the symptoms of shock have subsided is regarded as a grave mistake A hypodermic injection of morphin and atropin is given, artificial heat applied, a transfusion is done, hypodermoclysis or rectal injection is given if necessary while the patient is being anesthetized, or if the need for this stimulation is not urgent the amputation is quickly done and a sufficient amount of normal salt solution is injected into the open mouth of a vein in the stump after removal of the tourniquet, and the wound is closed and dressed Extreme caution is urged about removing bits of tissue which seem hurt beyond recovery The objection to this "trimming" process is that it opens new atria for infection, causes unnecessary sacrifice of

tissue, increases the bleeding and adds to the time anesthesia As a rule dry dressings are preferred Raw surfaces should be covered by narrow strips of protective to prevent sticking of the dressing and the consequent disturbance of the granulations when the dressing is changed A nonodorous, nonirritating antiseptic powder used freely in lacerated wounds is advantageous Porter believes that prophylactic measures against tetanus are uncalled for and would better be withheld in the treatment of all accidental wounds save those received under circumstances rendering infection by the tetanus bacillus probable

116 **Transplantation of Fat**—Out of thirty-two cases reported by Kanavel secondary infection with loss of the fat occurred in four breast cases, and here the result was probably due to the nature of the operation and the large field and the osteomyelitis cases Therefore, the author thinks it would seem safe to say that fat can be transplanted into any ordinary field with the assurance that it will not act as a foreign body Clinically, it would appear to live and become a part of the structure in which it is placed His results would seem to indicate that the greatest value of fat transplantation is to be found in its use in plastic operations to restore mobility and remove disfigurement, as a protection to prevent contracture about vessels and nerves, and to prevent adhesions about tendons and joints Its use in tuberculous joints and bones is still a fruitful field of study, and the same may be said of its use in traumatic epilepsy, although it can be used safely to obliterate defects in brain tissue In the author s hands the use of fat transplants in large, open potentially infective areas, such as are present after breast amputations, etc, and in osteomyelitis, has not been satisfactory

123 and 124 Abstracted in The Journal, January 15, pp 216 and 217

126 **Resection of Prolapsed Rectum**—The modification recommended by Brock consists in performing the Mikulicz operation over a proctoscope or a round billet of wood, introduced through the lumen of the prolapsed mass

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Medical Journal, London

July 22 II No 2899

1 Industrial Diseases J W Edwards—p 97
2 Head Injuries in War A W Addinsell—p 99
3 Treatment of Hernia Cerebri S Smith—p 102
4 Treatment of Fractured Mandible Accompanying Gunshot Wounds H P Pickerill—p 105
5 Treatment of Chlorin Gas Poisoning by Venesection A S Hebblethwaite—p 107
6 Death After Nitrous Oxid Oxygen and Local Anesthesia W J McCardie.—p 109

Journal of Tropical Medicine and Hygiene, London

July 15 XIX No 14

7 Paracholera Caused by Vibrio Gindha Pfeiffer 1896 A J Chalmers and N E Waterfield—p 165

Lancet, London

July 22 II No 4847

8 *Cardiac Disabilities of Soldiers on Active Service J Parkinson—p 133
9 Enteric Like Fever in Anglo Egyptian Sudan A J Chalmers and N MacDonald—p 139
10 Gangrene of War Gaseous Cellulitis or Emphysematous Gangrene A J Hull—p 144
11 *Cardiac Symptoms Following Dysentery Among Soldiers E B Gunson—p 146
12 Radical (Excision) Treatment of Gastric Ulcer J Cunning—p 147
13 Treatment of Hemorrhoids by Interstitial Injection T Bird—p 149
14 Unusual Case of Albuminuria O Leyton—p 150

8 **Cardiac Disabilities of Soldiers**—Parkinson records the result of an inquiry into the various conditions which lead men on active service to report sick with symptoms suggesting heart disease It is based on ninety cases There were twenty-two among the ninety cases in whom other diseases were demonstrable Valvular disease was present in twenty-eight Forty men complained of cardiac symptoms, especially breathlessness and precordial pain, but in whom no physical sign of heart disease could be found Parkinson says that this is not a specific variety of heart disease and needs no such name as "soldier's heart" In about half the cases in this series the disability had been present to some extent in civil life and was therefore not the result of military service The relative cardiac inefficiency may be (*a*) a sequel of acute rheumatism, dysentery, influenza or other infection, (*b*) the result of myocardial changes due to age, especially in soldiers over 40, (*c*) associated with functional nervous disorder, particularly in cases in which the palpitation is a prominent complaint, (*d*) due to endowment with a heart of limited efficiency, so that the individual has always been short winded and fails to improve under training The cause may be a congenital incapacity for full development of the heart, an unrecognized infection during infancy, or the absence of physical training during adolescence A simple exertion test, such as climbing twenty-five to fifty steps, reproduces the symptoms in these patients and so furnishes valuable information on the functional efficiency of the heart Some degree of myocardial disease is present in a number of cases

11 **Cardiac Symptoms Following Dysentery**—In a series of sixty-five cases of dysentery recorded by Gunson three fatal cases all presented signs of considerable circulatory embarrassment The pulse became extremely feeble and at times was imperceptible at the wrist The extremities were cold and clammy In the terminal stages cardiac dilatation occurred and was associated with extreme cyanosis, particularly of the face, head and neck Temporary relief of symptoms was afforded by epinephrin Of the patients who recovered 17 per cent presented symptoms of circulatory inefficiency, persisting into the third week of convalescence, when the patients were transferred to England Dyspnea, palpitation, precordial pain, vertigo and a sense of exhaustion were the chief complaints The exhaustion met with in the severe cases was greater than the muscular atrophy and weakness seemed to justify, though there was no evidence pointing to organic disease of the central nervous system The high incidence of persistent cardiac symptoms is attributed mainly to the fact that the majority of the patients continued on duty in the trenches until completely exhausted, another factor was the exertion of walking to the lavatory, necessary even during the early stages of the disease, owing to the exigencies of active service Cardiac symptoms during convalescence from dysentery, Gunson says, are of importance in relation to soldier's heart, as dysentery unquestionably contributes a certain number of cases to this group Therefore, after a severe attack of dysentery adequate rest in bed should be assured to obviate consequent cardiac derangement

12 **Radical Treatment of Gastric Ulcer**—Cunning claims that all gastric ulcers can be excised except those which are adherent to important structures in the neighborhood, and that gastrojejunostomy is useless for these When the ulcer is adherent to important structures the stomach can be detached from the base of the ulcer, the opening closed, and the base of the ulcer, after being scraped and being now excluded from the stomach, will give no further trouble

Medical Journal of Australia, Sydney

June 24 I No 26

15 Field Ambulance with Fourth Infantry Brigade in Gallipoli J L Beeston—p 497
16 Case of Epithelioma of Lip C E Corlette—p 499

July 1 II No 1

17 Metric System in Prescribing J C Verco—p 1
18 Second Case of Intra Orbital Growth Removed by Krönlein s Operation (Osteoplastic Resection of Outer Wall of Orbit) F A Pockley—p 5

July 8 No 2

19 Criminology as Branch of Medicine W A T Lind—p 19
20 Calcified Glands Mistaken for Ureteral Calculus D Kelly—p 23
21 Jackson s Parietocolic Membrane Producing Symptoms C E Corlette.—p 23

he was back at the office with severe gonococcus epididymitis and posterior urethritis and the bride was found to have chronic gonococcus trouble The circumstances were much the same in the other cases—after months of abstention a night of venereal excesses Toward the latter part of the orgy conditions must have been such as to induce aspiration into the urethra P Asch has called attention to the possibility of aspiration in these circumstances, and Oppenheim and Low have further confirmed its possibility by discovery of antiperistaltic movements in the vas deferens under certain conditions Ahman had examined the prostate and its secretion with special care a few days before in the bridegroom and found them normal The evidence is thus all in favor of the trouble being a primary epididymitis and posterior urethritis They soon yielded to treatment without involving the prostate

63 **Leukemia Involving the Internal Ear**—The man of 44 had been robust until 1915 but after a thorough chilling he began to feel languid and have headache, with subjective noises in the ears, and he gradually became deaf in the left ear The right ear became affected in an acute form later, as the myelogenous leukemia developed in a pronounced type Rudberg reviews the analogous cases on record, including Alexander's fifteen with necropsy in 12, a total of about twenty-four on record The leukemia trouble in the labyrinth may be from hemorrhages or leukemic infiltration or both

Norsk Magazin for Lægevidenskaben, Christiania

July, LXXVII, No 7, pp 845 988

65 *Foreign Bodies in the Esophagus, Trachea and Throat (Om fremmedlegemer i spiserør, luftrør, og strupe) F Leegaard —p 845
66 *Detection of Typhoid Bacilli in Search for Carriers (Undersøkelse paa tyfusbaciller i avføring) B Wilmann —p 879
67 Disproportionate (Eunuchoid) Growth in Length of Limbs in Women, Two Cases (Uproportionert vekst hos kvinder) C Schiøtz —p 909
68 *Case of Paralysis of the Vagus Nerve (Et tilfælde av vagus lammelse) L Nicolaysen —p 948

65 **Foreign Bodies in Esophagus and Trachea**—In all but one of the cases reported and illustrated by Leegaard, the foreign body was extracted by the natural route under direct visual inspection or was passed in the stools later It is easier to introduce the esophagoscope with the patient seated, but this may have been responsible for the foreign bodies slipping down into the stomach in three of the cases "For this reason," he adds, "Jackson, the American virtuoso in this line, places the patient in the reclining position, regardless of his age" Leegaard is now convinced that this is better for children, at least, as the physician does not have to combat the attraction of gravitation as when the patient is sitting up In one case the irritation from the foreign body had caused the tissues to swell so that they hid completely the foreign body, demonstrating anew the advantages of prompt extraction before inflammatory reactions have had time to develop He comments further on the advantage of aspirating out of the esophagus the mucus secreted under the irritation from the foreign body A water-jet-pump aspirating device answered the purpose in his cases A dilatation esophagoscope was very useful in some cases When there is danger of injuring the esophagus by drawing the foreign body up and out, he insists that it is better to let it slide down into the stomach It can then be followed with the Roentgen rays and the abdominal surgeon can extract it with comparatively little trouble if circumstances demand The intestines have such a wonderful capacity for carrying off foreign bodies without harm that it is seldom necessary to interfere

In four of his fifteen cases the foreign body was part of a set of false teeth, swallowed while sleeping A foreign body of this kind usually catches at some point almost at once as it enters the esophagus, which is one of the reasons why adults can be examined sitting In four of the fifteen cases there was a stricture from having swallowed lye at some time Any tendency to a stricture helps in catching and holding the foreign bodies In two of the cases a plum stone was caught between two such strictures In one of the cases a metal foreign body which had been swallowed entailed an infectious process in and around the esophagus In time this caused a protrusion in the back It was during Roentgen examination of this hump that the foreign body in the esophagus was casually discovered He further reports a series of twelve buttons or beads removed from the trachea in different cases

Unless the Roentgen picture is unmistakable, it may prove misleading, as in one of his cases in which a woman of 29 related that she had swallowed a piece of bone a week before, and it had stuck in her gullet She could feel it there, and the sound also gave the impression of a foreign body Esophagoscopy was dubious as a low protrusion in the lining prevented inspection of the whole passage The roentgenogram showed a shadow, a handsbreadth above the diaphragm, which was assumed to be cast by the foreign body In order to reach it a rib was resected and the esophagus opened, but nothing was found The patient died from postoperative pneumonia, and necropsy revealed that the shadow had been cast by a bunch of calcified glands A negative roentgenogram is decisive, if certain that the foreign body incriminated is of metal, but otherwise not, if the technic is correct Esophagoscopy is the more reliable of the two He used Killian's suspension laryngoscope with good results in some cases, especially in a young child who got a small bone in his larynx while eating bean soup beside his mother

66 **Detection of Scanty Typhoid Bacilli in the Stools**—Wilmann gives a historical sketch of this line of research, and describes his own tests to isolate the typhoid bacilli when they are present only in small numbers As they are liable to be unevenly distributed, he mixes a large lump of the feces with physiologic salt solution in a mortar and takes one of two drops of the mixture to sow on the Drigalski-Conradi medium, spreading it on four or five plates Comparative tests of this method have demonstrated its superior reliability, especially *in seeking for carriers* and in convalescents The livelier movements of the typhoid bacilli are an aid in differentiation He obtained almost pure cultures of these bacilli in tests with equal numbers of them and of colon bacilli, each in 2 c c saline One drop of each emulsion was placed on a small groove in filter paper and placed on the bottom of a glass cylinder, about 8 cm tall, which was then filled cautiously with bouillon, covered, and placed in the thermostat At intervals thereafter one drop from the surface of the bouillon was transferred to the Drigalski-Conradi culture medium which was then incubated for twenty-four or forty-eight hours Some of the plates inoculated after an interval of only two hours showed three colonies of colon bacilli and eighty of typhoid, after four hours only four of the former and 200 of the latter The typhoid bacilli are so much more motile than the colon bacilli that they work through the layers of filter paper much quicker than the colon bacilli This occurred the same even when a 1 cm layer of sand, pulverized pumice stone or chalk was poured on the filter paper Positive findings were obtained with this motility test even when all other tests were negative, especially when the suspension of the larger amount of feces was used Complete details of twenty-one applications of the test, controls, and results are given They show among other things that the motility of the colon bacillus is greater than is attributed to it by the textbooks By the end of six hours the majority had worked up to the surface Attempts to hold back the colon bacilli by adding an agglutinating serum to the fluid were not successful Litmus-milk sugar-agar seemed to work a little better than the Drigalski-Conradi medium He advises, in testing for carriers, to give a laxative beforehand to drive more bile into the feces, as lurking typhoid bacilli are usually ensconced in the bile apparatus

68 **Vagus Paralysis**—In Nicolaysen's case a married woman of 43 had a scirrhous cancer of the breast with metastases in spine and lungs The pulse was between 120 and 140 and this was explained at necropsy by the discovery that the cardiac plexus was entirely involved in the cancerous growth, thus arresting the normal inhibiting action of the vagus on the heart The clinical diagnosis of vagus paralysis was thus confirmed

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RINGWORM OF HANDS AND FEET *

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Ringworm of the glabrous skin presents well-known characteristics readily recognized by all The cases described in this paper do not present the ordinary clinical symptoms of ringworm of the body, but are examples of what is ordinarily termed dyshidrosis or eczema of the vesicular-vesiculopustular or intertriginous type What proportion of these is mycotic will require investigation of a large number of cases by many observers to determine but it appears to be large

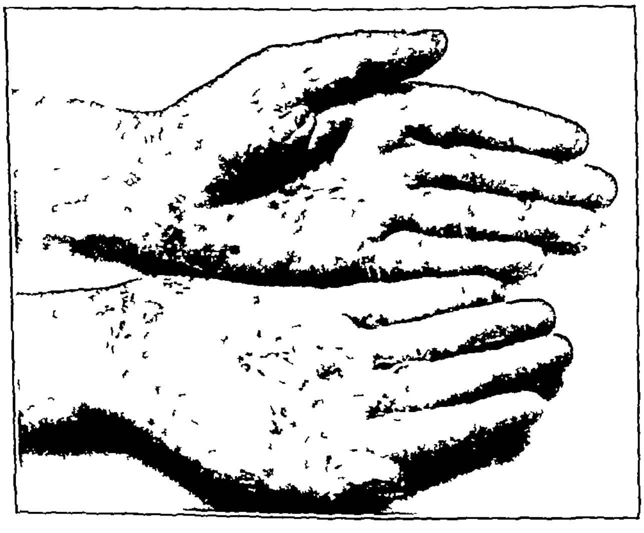

Fig 1 (Case 1) — Vesicopustular lesions on hands and feet

HISTORICAL

Tilbury Fox[1] was probably the first observer to report a recognized case of trichophyton infection of a volar surface The diagnosis in his case was simplified by the fact that the lesion began on the dorsal surface of the hand as a typical ringworm and gradually progressed until it involved the interdigital and palmar surfaces of the fingers In 1888, Pellizari[2] reported the occurrence of seven cases of infection of the palms and soles in a series of 150 cases of trichophytosis capitis The first careful and systematic study, however was not made until 1892 In January of that year, Djelaleddin-Moukhtar,[3] working in Fournier s clinic, presented two cases before the Societe de dermatologie They were of the eczematoid dyshidrotic type with abundant mycelial threads, and excited much interest and discussion by the society During that year four more papers by the same writer appeared In the last of these[4] he collected reports of twenty-five cases, seventeen of which were personal observations

In 1908, Whitfield[5] described five cases of ringworm of the hands and feet "indistinguishable from an ordinary outbreak of acute vesicobullous eczema" In 1910, Sabouraud[6] reported six cases of intertriginous eczema of the feet, four of which gave cultures of *Epidermophyton inguinale*, and one case with lesions on the hand In February, 1911, Whitfield[7] recorded observations in seven additional cases In November, 1911, Sabouraud presented his observations on the subject at a special meeting of the Dermatological Section of the Royal Society of Medicine The discussion was opened by Whitfield[8] with a paper in which he classified the clinical types and reported fifteen additional cases In the general discussion which followed, most of the members present told of having encountered the disorder among their private patients

Since 1911, the most comprehensive paper on the subject is that of Kaufmann-Wolff[9] She made a clinical, histologic and mycologic study of twenty-five cases which formerly would have been accepted as dyshidrosis In America, Montgomery and Culver[10] reported an infection of the feet, following eczema marginatum of the groin from which *Epidermophyton inguinale* was grown In 1915 Hartzell[11] reported four cases which he had seen "in the past few years"

In 1916, Lane[12] reported two cases, both of which were in women One patient had lesions on the plantar surface of the foot, and the other had lesions involving the nails and both dorsal and palmar surfaces of the fingers

Classification — Whitfield[8] classified the different manifestations into three types 1 Acute vesicobullous Sudden onset, with all the characteristics of a vesicular eczema or dyshidrosis Pus formation usually absent No grouping, and no spreading margin 2 Chronic intertriginous of toes Secondary to acute vesicular type Whitened, sodden mass of epithelium between the toes 3 Chronic hyperkeratotic Enormous and irregular masses of overgrown horny layer Usually on the feet, may involve the entire plantar surface Scattered vesicles and pustules may be found

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* Read before the Section on Dermatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Fox Tilbury Brit Med Jour 1870

[2] Pellizari Gior ital d mal ven March 1888

[3] Djelaleddin Moukhtar Ann de dermat et de syph 1892 p 1 2

[4] Djelaleddin Moukhtar Ann de dermat et de syph 1892 p 804

[5] Whitfield Lancet London July 25 1908

[6] Sabouraud Ann de dermat et de syph 1910 p 289 Les teignes Paris 1910

[7] Whitfield Brit Jour Dermat 1911 xxiii 35

[8] Whitfield Brit Jour Dermat 1911 xxiii 37

[9] Kaufmann Wolff Dermat Ztschr 1914 xxi 385

[10] Montgomery D W and Culver G D Eczema Marginatum of the Toes The Journal A M A April 4 1914 p 1076

[11] Hartzell Am Jour Med Sc 1915 cxlix 96

[12] Lane Boston Med and Surg Jour 1916 clxxiv p 271

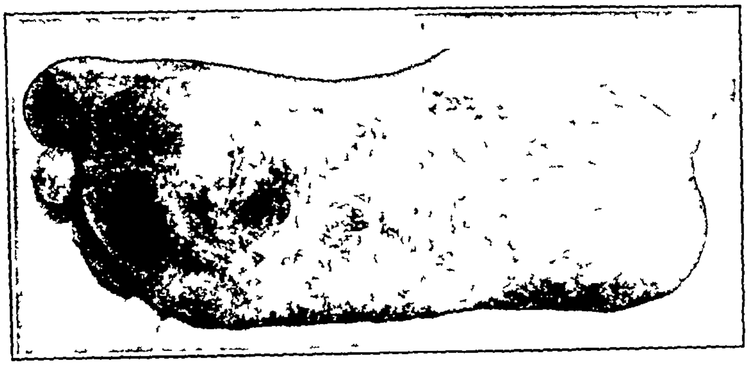

Fig 2 (Case 2) —Chronic keratotic lesions of feet

Kaufmann-Wolff[9] agrees essentially with Whitfield's classification She found that her twenty-five cases fell into three groups 1 Vesicular Grouped, accompanied by marked itching, mostly occurs in hot weather, sago-grain vesicles 2 Squamous Resembles a scaling dyshidrosis, usually with a central primary lesion Results from confluence of vesicles 3 Pyodermic Resulting from secondary infection

These types are due to variations in location, duration of the lesions, and to seasonal changes A patient may present one type on one occasion and another (or all three) the next time he is seen

CLINICAL DESCRIPTION

The essential lesion is probably in all cases a vesicle, which may be solitary or multiple, grouped or widely disseminated The vesicle is deeply seated, only slightly elevated, and has the appearance of a sago-grain embedded in the epidermis The content is usually clear, unless secondarily infected, and as a rule there is no erythema surrounding new vesicles In the course of a few days to a week, the fluid is absorbed, leaving a brownish macule Eventually, the roof of the dried vesicle becomes torn and desquamation begins, exposing a red, smooth, shiny surface, with a collaret of upturned scales (Case 1)

The subsequent development depends on (1) the number of vesicles and their distribution and (2) the location of the lesions A third factor is probably to be added, namely, the type of the invading organism, but as yet we have insufficient mycologic data to include this

If the vesicles have remained discrete, they may desquamate and leave slightly scaling areas, which have not even attracted the attention of the patient, but which may still harbor the organism long after the subsidence of the vesicle Instead of desquamating, the roof of the vesicle may produce a yellowish-brown, keratotic button, 1 to 2 mm in thickness, in which many mycelial threads may be found, and beneath which there may be little or no trace of the usual shiny red surface (Case 9) The hyperkeratoses so frequently observed are probably formed in this manner

If, however, the vesicles have been grouped, large confluent vesicles, or even bullae, may result Should such a group occur in a comparatively dry area, as, for example, the center of the palm or sole, or high up on the arch of the foot, desquamation may take place, leaving a circular, fairly well defined, shiny red area denuded of corneous layer (Case 4)

Unmolested, this lesion may heal spontaneously, or new vesicles may continue to form around the entire periphery, with extension in all directions, or they may form only at one point, with extension in one direction

Irritated with caustics or macerated with moist dressings, the lesion may be transformed into an eczematoid dermatitis or a severe pyodermia In either case, the finding of the fungus microscopically, or the growth of a pure culture, becomes very difficult

The location of the lesion determines largely the conditions in which the organism must proliferate, and hence the type of lesion, whether it shall be a relatively flat surface of thin, dry corneum, constantly exposed to the air, such as may be found on the palm of a sedentary person, in a greatly thickened corneum as that of the heel of a hyperhidrotic foot, or whether it shall be located in the thin, warm, moist, macerated and closely approximated surfaces of the fourth interspace of the foot

The isolated vesicle on the hand usually exfoliates In some cases, scaling areas very much like the relics of a mild toxic erythema will be the only evidence of its having existed The grouped vesicles may develop into a dry or slightly moist, well defined eczematoid area (Case 8)

On the heel, and especially along the outer margin of the plantar surface, marked hyperkeratoses may be developed, and in the midst of these hyperkeratoses solitary vesicles containing the fungi (Cases 2 and 3) may occur This would seem to indicate that the chronic keratotic type is the result of repeated vesication in a thickly cornified area, which is not subject to maceration

Of all the cases under observation, the interdigital surfaces of the fourth interspace of the toes is the region most commonly affected, as was pointed out by Sabouraud,[13] who maintained that a cutaneous fold is always the point of origin of the lesions induced by *Epidermophyton inguinale* or *plicarum* He says

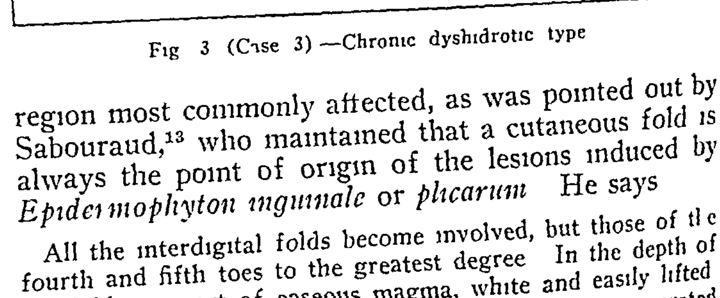

Fig 3 (Case 3) —Chronic dyshidrotic type

> All the interdigital folds become involved, but those of the fourth and fifth toes to the greatest degree In the depth of the fold is a sort of caseous magma, white and easily lifted Beneath this, the epidermis is white, brilliant, moist, macerated and thickened, scraping removes large plaques, which resemble a sort of adherent false membrane As one passes from the fold, the lesion becomes more definitely vesicular, but the

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[13] Sabouraud Ann de dermat et de syph, 1910, p 291

vesicles are few in number and in different stages of evolution

Infrequently, the process extends backward on the plantar surface of the foot as a fairly well defined area of desquamation (Case 4), or merely a slight scaling may be present As a rule, however, the changes are limited to the interdigital surfaces of the fourth interspace and to the plantar surfaces of the fourth and fifth toes At the base of the fifth toe, a superficial fissure which is partly interdigital and partly plantar, is commonly met In some cases a similar fissure is seen in the flexor folds of all the toes

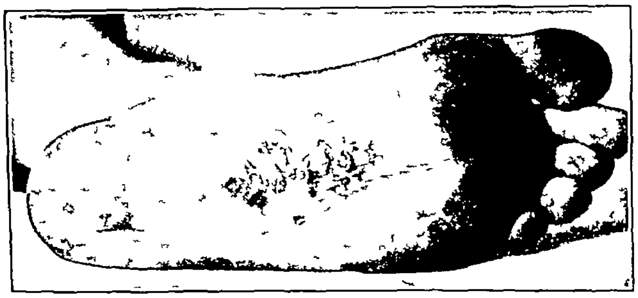
Fig 4 (Case 4) —Grouped vesicles on left sole

In seeking material for examination, this caseous magma and the white, sodden epithelium should be discarded Although the organisms are usually to be found in it, nevertheless frequent disappointment will occur and a failure to establish the diagnosis result if it be depended on The superficial scales should be removed with the curet down to the point where the squames become pinkish and are attached rather firmly, with perhaps but one loose margin

The reason for the localization of the disorder in the fourth interspace of the foot is that the shoe causes the fifth toe to be in a constant state of flexion and adduction Eventually, the last two toes become so molded, one against the other, that it is difficult to separate them and renders proper cleansing difficult Hence, as time goes on, the exfoliated epidermis, instead of being daily removed, remains and becomes macerated in this warm, moist pocket This offers ideal conditions for the growth of *Epidermophyton inguinale*

That the invading organism, which in most foot cases is *Epidermophyton inguinale,* prefers a moist, warm place, is shown by the fact that (1) both this disorder and eczema marginatum are common in the tropics, and that they heal when the patient goes to a high and dry climate and recur when he returns,[14] (2) the folds (axillary, mammary, inguinocrural and scrotocrural) are the points of origin of eczema marginatum, and (3) hyperhidrosis is frequently present in infected hands and feet Furthermore, Fischer[15] has reported an interesting epidemic, consisting of ten cases, occuring in hospitalized pulmonary patients who had had hot applications to various areas about the chest The regions so treated developed vesicular eruptions, which at first were thought to be due to the heat applied, but which were subsequently found to be infections due to *Epidermophyton inguinale*

ANALYSIS OF CASES

The group of cases forming the basis of this report consists of sixty-five patients seen in the ordinary routine of private practice Of this group, fifty-four were male and eleven were female, a preponderance of male over female 5 to 1 This high ratio may be merely an accidental one in a group too small to admit of generalization, or it may be due to the recognized fact that eczema marginatum occurs more frequently in men than in women Pringle[16] saw an epidemic of eczema marginatum in which seven men were affected out of twenty in an institution housing forty, half of whom were women In another institution, he saw twenty men infected without a single infection in a female In our series, only eleven cases, one of which was in a female, gave a history of having had eczema marginatum, two had eczema marginatum coexisting, and one was followed by eczema marginatum while under observation Two women described typical eczema marginatum occurring in their husbands in past years This small number of eczema marginatum cases in our series would be insufficient to account for the high ratio of men to women Moreover, the group of twenty-five cases of Djelaleddin-Moukhtar included fifteen women and only ten men In a series of thirty-five cases of eczema marginatum, composed of twenty-nine men and six women, with lesions on various regions of the body, Nicolau[17] observed only four cases in which the feet were simultaneously involved In two other cases, only the feet were affected, and one of these, a woman, developed a lesion in the groin two years later

Familial transmission was observed in seven families In two of these, eczema marginatum of the groin and infection of the feet were observed in both father and son In two families, eczema marginatum had occurred previously, followed by infection of hands or feet (or both) of wife and husband In two families, the husband had been treated years ago by Dr Hyde for "dyshidrosis" of hands and feet, and recently both husbands and wives have been found to have both feet infected In one family, the daughter was treated in 1915 for an infection of the feet continuing two months In April, 1916, her father was seen with the same condition, which had been present "many years" One woman, with both feet infected, gives a good description of an attack of eczema marginatum occurring several years ago in her husband

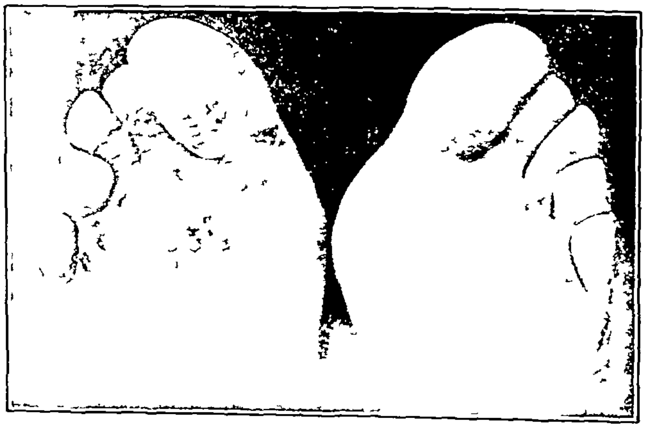
Fig 5 (Case 5) —Severe intertriginous type with extension to plantar surfaces

The age of the patients varied from 9 to 54 years The duration ranged from 1 week to 20 years In three cases, the condition had existed from three to six weeks, in nine less than ten months, in twenty-six more than one year, in eighteen more than two years, and in seven more than ten years

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[14] Castellani Arch f Dermat u Syph 1908 xcii 23
[15] Fischer Berl klin Wchnschr 1915 No 10 p 24
[16] Pringle Brit Jour Dermat 1911 xxiii 394
[17] Nicolau Ann de dermat et de syph 1913 p 65

Plotting the seasonal variation in the number of cases shows the maximum to have occurred in September, with May as the next highest month This agrees with the statements of many patients that they have exacerbations in spring and autumn or that they "have trouble with their feet when the first warm weather comes" Nineteen stated that they were always worse in warm weather

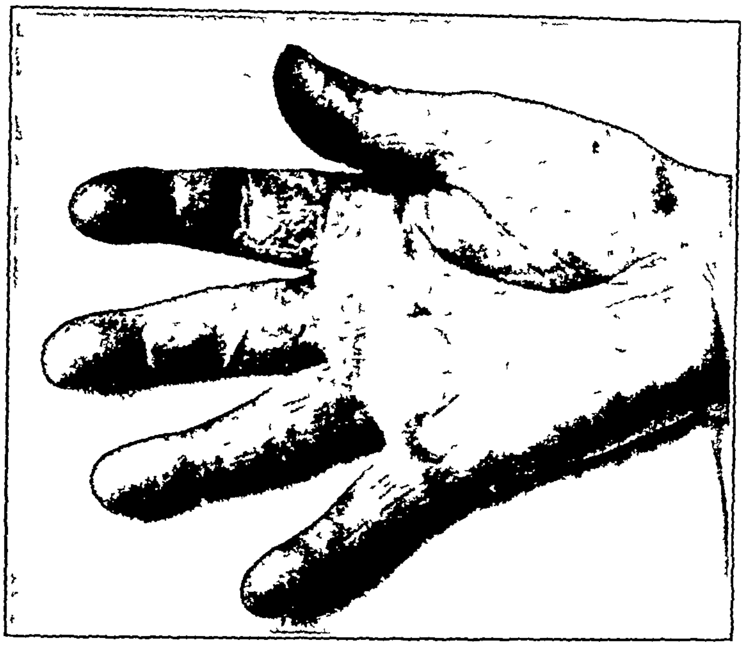

Fig 6 (Case 6) —Localized intertriginous and palmar lesions of right hand

The subjective sensation varied from being unaware that there was a disorder present to incapacity for walking One such extreme case occurred in a boy who was carried into the office Three men were scarcely able to get about, and appeared with feet bandaged and covered with house slippers Itching was the most constant symptom, and was complained of by fifty-seven patients

Foot infections were observed in sixty cases, hand infections in twenty-three cases, feet only in forty-two cases, hands only in five cases and both hands and feet in eighteen cases In Djelaleddin-Moukhtar's series, the hand cases outnumbered the foot cases by 16 to 9

The diagnosis of "dyshidrosis had previously been made by trained observers in twelve cases Of these, three had been so treated by Dr Hyde and three by the writers "Eczema" was next in order of frequency, with a total of six cases One patient had been treated for "ivy poisoning"

The average number of visits made by each person was 3 5 The largest number of visits made by one person was thirteen Thirteen patients made only one visit each, twenty-one patients made four or more visits, five patients made eight or more, and three made ten or more visits The disorder recurred in six cases after apparent healing

MICROSCOPIC EXAMINATION

The demonstration of the fungi in the tissue is readily made, as a rule, but occasionally considerable difficulty is encountered, particularly in those cases which have had a secondary dermatitis produced by irritants, or those in which a marked pyoderma has developed

If vesicles are present, those which are showing signs of absorption, or even those which are beginning to desquamate, should be selected, because in the older ones the fungi will be found in greater numbers The top should be removed with a thin, sharp blade, inverted on a glass slide, and covered with a drop of a 15 per cent solution of sodium or potassium hydroxid Over this is placed a cover glass, and the slide is heated until the fluid boils Pressure is then applied to the cover glass, reheating and adding more solution as necessary, until the tissue is pressed out into a thin smear Sabouraud[18] prefers a 30 per cent solution, and insists that the tissue should be placed in a watch glass and boiled in this solution until it disintegrates

The vesicles are so deep seated that unless care is exercised only the most superficial part of the roof will be removed and the vesicle may remain unopened Only by cutting into the vesicle and liberating the fluid can one be sure of getting the entire roof, which is essential for the demonstration

In the absence of vesicles squames may be used with good results

The morphology of the organism in the tissue has resembled, in this group of cases, that of *Epidermophyton inguinale* The spores are never found in groups, but always in chains They have a tendency toward a quadrilateral shape, and are somewhat loosely attached to each other Interspersed with the chains of spores are slender mycelial threads running in all directions After standing for days or weeks in sodium hydroxid, the spores may become swollen to several times their former size

MYCOLOGY

As yet, no culture work has been sufficiently extensive to establish firmly the fungi involved in volar and intertriginous affections Djelaleddin-Moukhtar makes no mention of cultures, but Sabouraud[18] having seen some of the cases, is convinced that they were ordinary ringworm with merely accidental volar involvement, due probably to *Trichophyton violaceum asteroides, acuminatum,* or *granulosum,* and in nowise connected with eczema marginatum In 1910, Sabouraud was able to cultivate *E inguinale* from four of six foot cases Whitfield,[7] in 1911, did not succeed in getting a culture in any of his seven cases Later in the same year[8] he reported fifteen additional cases, but speaks of only four cultures, three of which were *E inguinale* and a fourth an unidentified organism, thought to have been helminthosporium Sabouraud[19] -

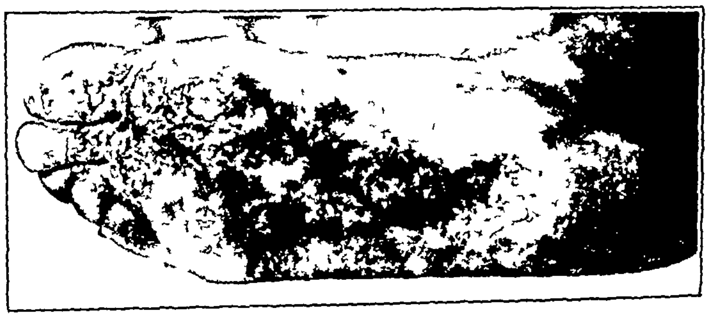

Fig 7 (Case 7) —Extensive intertriginous and plantar desquamation with secondary infection

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18 Sabouraud Arch f Dermat u Syph, 1912, cxiii 927
19 Sabouraud Brit Jour Dermat 1911, xxiii 390

saw an intertriginous infection of the foot in a patient who had just returned from the East due to *Epidermophyton rubrum* first described by Castellani.[20] Sabouraud,[18] in 1912, reported having seen twenty-three cases of eczema marginatum of the hands and feet in one and one-half years, but does not state how many yielded cultures. Kaufmann-Wolff,[9] in a series of twenty-five cases obtained in all of them an organism which grew rapidly in a white or yellowish culture.

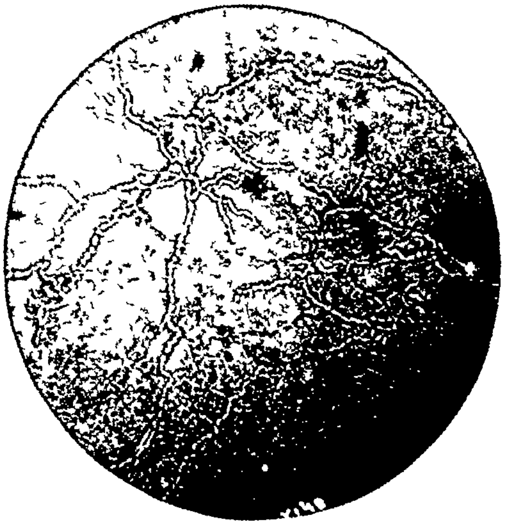

Fig 8 (Case 7)—Photomicrograph of fungi in squames

It was submitted to Sabouraud, who thought it probably *Trichophyton equinum*. Montgomery and Culver[19] grew *E. inguinale* from their case. Gougerot and Gancea[21] recovered a yeastlike organism from an intertriginous foot case. The colonies were shiny, white or creamy with a central button surrounded by a flat areola. Microscopically, it was found to be composed of filaments, pseudofilaments and budding cells. Hudelo and Montlaur[22] reported a similar organism found in three cases of intertriginous lesions of the feet, and one case with intertriginous lesions on the hands. Saphier[23] grew a fungus resembling *Trichophyton gypseum* from vesicles in the plantar and interdigital surfaces of the left foot.

The culture of the organisms, particularly in tissue taken from the feet, is attended by several difficulties, chief among which is the overgrowth by various cocci or by *Penicillium glaucum*. If discrete vesicles are present in nonmacerated epidermis, the chances of obtaining an uncontaminated culture are good. The region should be carefully cleansed, and the tops of the vesicles removed and cut into small bits with sterile knife and forceps and immediately planted on the surface of the agar. Despite the greatest care, however, one may get a troublesome growth of colonies of cocci, through which the fungus may find difficulty in growing.

The greatest difficulty was encountered in attempting to grow the fungus from the squames of the intertriginous lesions of the feet. In these moist and macerated squames many varieties of organisms abound all of which are rapid growing, whereas *E. inguinale* requires from five to eight days to develop.

In order to secure the greatest surface with the smallest amount of agar, ordinary square shouldered whisky flasks were used. When properly prepared, the surface of the agar, with the flask on its side, is just level with the side of the neck. In making the plants, the flask can be placed flat on the edge of the table, and by means of a platinum loop small bits of tissue can be distributed evenly over the whole surface of the agar, with very little danger of contamination from the air. Two dozen plants, or two subcultures will be easily accommodated in one flask, with room for the colonies to develop without interference. As a rule, *E. inguinale* colonies become pleomorphic and stop growing before the sides of the flask are reached. The "proof agar" of Sabouraud,[24] which consists of 4 per cent crude maltose and 1 per cent peptone, has been used in all of the cultures.

Owing to an inability to get material for the culture medium, our work was not begun until March, 1916. Since then, cultures have been made in seventeen cases. We intend to carry on this part of the work, a more extended report of which will be reserved for the future.

Of the seventeen cases, six yielded typical cultures of *E. inguinale*. Four of these were foot cases, one with lesions on the feet and groin, with the same organism in almost pure culture in each region, and one with vesicles on the hand, which had been preceded by eczema marginatum of the groin, axillae and neck.

The culture appears as a small, greenish-yellow point, which becomes powdery on the surface, with the color, as suggested by Sabouraud, of an unripe lemon beneath. The center gradually becomes acuminate, and may become elevated to the height of 1 cm. In the course of from three to six weeks, a fluffy, pure white tuft, or "duvet," appears at one or many points. This is known as the pleomorphic stage, and eventually overgrows the culture. Subcultures made from this have the same characteristics, and the original form cannot be recovered. If *E. inguinale* is grown on peptone agar without carbohydrate this pleomorphic form will not appear. Microscopically, the fungus is easily identified by the fruitlike bodies.

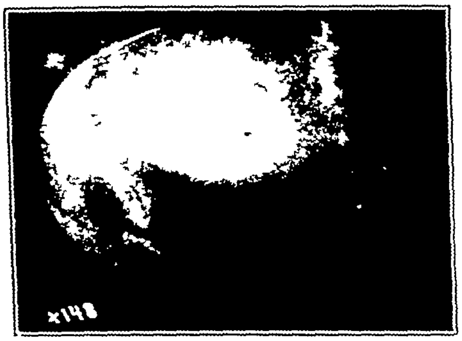

Fig 9 (Case 7)—Culture of Epidermophyton inguinale 3 weeks old

In four cases, a pure white culture of aerial hyphae was obtained. Microscopically, this is seen to be a mycelial thread, with short branches at right angles alternating at opposite sides of the stem, with a spore on the end of each. We have not identified this organism. In one of this group was found a fungus appearing somewhat similar to *E. inguinale*, except that the center is of a cream color, surrounded by a region of soft buff, and around the whole is a narrow margin of bright orange-yellow

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[20] Castellani Brit Jour Dermat, 1910 xxii, 147

[21] Gougerot and Gancea Bull Soc franç de dermat et de syph July 1914 ibid December 1915 p 355

[22] Hudelo and Montlaur Bull Soc. franç de dermat et de syph July 1914 ibid December 1915 p 403

[23] Saphier Arch f Dermat u Syph 1916 cxxii 676

[24] Sabouraud Les teignes 1910 p 112

Three cases yielded a cream-colored colony, with a central button and a margin of pure white This may be the same organism described by Kaufmann-Wolff

Three cases gave almost pure cultures of white, shiny, smooth and moist colonies Microscopically, the organism appeared as budding spores and short, or pseudofilaments This corresponds with the description of the organism found by Gougerot and Gancéa [21]

DIAGNOSIS

The diagnosis depends on the microscopic examination of the tissues All vesicular, scaling or desquamating areas of the interdigital or volar surfaces of the hands and feet should be carefully examined for the presence of fungi One negative examination is not sufficient evidence to dismiss the case as nonparasitic Sabouraud describes a case in which he was unable to find the fungus at the time of the first visit, but when the patient was next seen, three months later, the demonstration was easily accomplished

In all the cases in this series, mycelial threads were found in the vesicle tops or in the squames of the volar surfaces Five other cases were seen in which it appeared that the organisms were present, and which yielded to treatment, but the fungi were not found, and therefore these cases have not been included

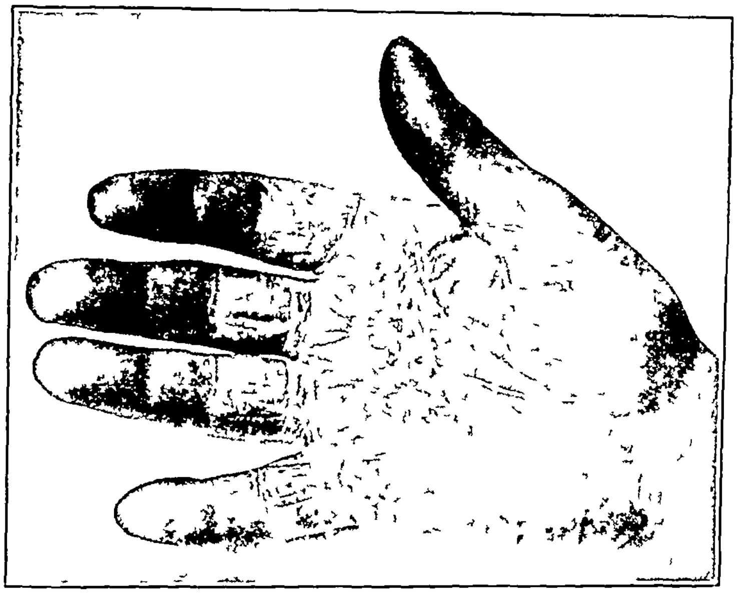

Fig 10 (Case 8) —Localized area of vesicles, desquamation, and scaling in palm

TREATMENT

The treatment consisted of three preparations In the severe pyodermic or eczematoid-dermatitis cases, a preliminary soothing treatment of naftalan combined with zinc oxid and starch was used This was followed by 5 per cent chrysarobin in traumaticin (chloroform solution of gutta percha) which was painted on until a good reaction occurred Ordinarily, the chrysarobin in traumaticin was immediately prescribed and directions given for five daily applications The patient was asked to return for observation after resting for a period of three days If necessary, the treatment was repeated

In another series of cases, an ointment recommended by Whitfield was used This contains 2 parts of salicylic acid and 4 parts of benzoic acid in 30 parts of ointment base It is applied daily and can be used for several weeks without producing irritation

Chrysarobin was used alone in thirty-six patients, who made an average number of 3 6 visits The ointment mentioned above was used alone in eight patients, by whom an average number of two visits was made

The number of cases in which the ointment was used is obviously much too small for comparison, but it appears to be somewhat more efficient than chrysarobin

CONCLUSIONS

1 Eczematoid and dyshidrotic lesions of the volar surfaces due to mycotic infection are much more common, at least in the Middle West, than the number of reported cases indicates

2 The disorder occurs more frequently in men than in women, more frequently on the feet than on the hands, and more frequently in the warm and damp than in the cold and dry season

3 The essential lesion is a deep-seated vesicle, in the roof of which mycelial threads may be found

4 The areas affected, in the order of frequency, are (*a*) the fourth interspace of the foot, (*b*) the plantar surface of the arch, and (*c*) over the tuberosity of the fifth metatarsus

5 The disorder frequently follows or precedes eczema marginatum, and is due in many cases to the same organism

6 The pathogenic fungus may remain dormant in the cutaneous folds of the feet throughout the winter months With the advent of warm weather an acute attack of vesication, desquamation and maceration may occur

25 East Washington Street

ABSTRACT OF DISCUSSION

Dr **William T Corlett**, Cleveland A number of years ago Dr L W Ladd of Cleveland called my attention to the presence of the trichophyton in lesions about the toes, and since that time I have been able to recognize that many of the so-called eczemas of the feet and less frequently of the hands are caused by this parasitic fungus Of course, trichophytosis of the nails of the hands and feet has been recognized for many years, but it is only in recent years that the responsibility of the trichophyton for other lesions about the extremities has become known When the nature of the eruption is suspected the microscope will reveal its true nature

Dr **H C Baum**, Syracuse, N Y I never dreamed that such a large proportion of troubles of this sort might be due to a fungus infection We now have the explanation of why the Roentgen rays were efficacious where other methods of treatment had failed

Dr **Richard L Sutton**, Kansas City, Mo At the meeting in San Francisco last year, in discussing ringworm of the palms, I stated that the condition must be an extremely rare one Since then I have found cause to change my mind While visiting in Portland, a few days after the close of this session, Drs King and Parker showed me two characteristic examples of the disorder, and a few weeks later Dr William Allen Pusey, of Chicago, presented to me several photographs of ringworm of the palm In their review of the literature the authors overlooked the recent report of Lane of New Haven, who described several cases of the affection

Dr **Jay F Schamberg**, Philadelphia There was a time when scabies was held to be of internal origin, of which assertion the symmetry of the lesions was regarded as corroborative evidence It would be interesting in the cases of eczematoid ringworm to determine whether a positive complement fixation test could not be demonstrated, employing the ringworm fungus as an antigen If there are cases which prove refractory to treatment, I would suggest that a vaccine made from the organism be employed, for the value of vaccine treatment in ringworm has, I think, been demonstrated I have seen a few cases of eczematoid ringworm of the hands and have been able to confirm the diagnosis by microscopic examination

Dr A Ravogli, Cincinnati I have found that chrysarobin and the white precipitate ointment often produce dermatitis, and I have obtained better results with the Wilkinson ointment and the following flores sulphuris and sapo viridis, each 2 drams, oleum cadi, 1 dram, terra alba, half a dram, and petrolatum, 1 ounce This has often produced most satisfactory results No preparatory treatment is necessary for removing the crusts, etc, because the ointment softens the scales After two or three days I can see good results from its use.

Dr William Allen Pusey, Chicago I happened to be in Paris in the summer of 1892, and I remember that one of the chief topics of discussion among the students around the St Louis Hospital was the fact that a Turkish assistant of Professor Fournier had demonstrated the occurrence of ringworm of the palms in the form of scaling lesions which Fournier said he could not distinguish from syphilis Since that time I have had this question in mind, but in a considerable number of these cases I am sure their character has escaped me I think we are under many obligations to Dr Ormsby and Dr Mitchell for emphasizing the importance of this type of ringworm of the palms and soles It is undoubtedly very common and equally undoubtedly seldom recognized Of especial interest is the ease of cure of the cases which they report from the use of chrysarobin, or benzoic and salicylic acid ointment, for even when the condition is recognized its cure has been by no means easy I have in some cases gone as far as I dared with Roentgen rays without effecting a cure, and I have seen the cases resist repeated applications of iodin along with careful dissection of the loosened epidermis

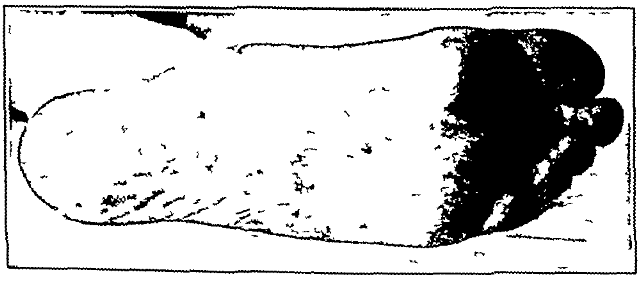

Fig 11 (Case 9) —Discrete vesicles on feet

Dr J M King, Nashville, Tenn Sabouraud first called attention to this condition in 1907, and since then I have used chrysarobin and iodin in liquid form, together with the ointment mentioned by Dr Ravogli, making the applications three or four times weekly, and I have yet to see a case that has failed to respond to this treatment

Dr George M MacKee, New York These cases are seen as frequently in the East as in the Middle West. At the clinic of Dr Fordyce we have had a large number of such cases but we have had a great deal of difficulty in making the diagnosis If you can identify the fungus, that settles it without question but in some of our work we have found spores where they seemingly should not have been, and have failed to identify the organism in cases where we expected to find it In short, our findings have not been entirely decisive or satisfactory We have had cases where we obtained a pure growth in Sabouraud's medium but the lesions were always squamous never vesicular In making our diagnosis, we depend not only on the regular cultural method but also try the method of placing some of Sabouraud s medium on a slide and infecting it, and then allowing it to grow for a few days and examine it under the microscope

Dr Walter James Heimann New York One difficulty in connection with this work in this country is that we do not make Sabouraud s medium properly To get his results it is necessary to use the ingredients Sabouraud uses and to compound them as he directs If we do this the organisms will grow as Sabouraud describes and the difficulty Dr MacKee mentions will be eliminated. On given mediums the cultural characteristics of trichophyta are constant Sabouraud has also worked out a very ingenious and valuable way of growing the organisms in a drop of medium on slides This facilitates the study of their cultural properties, for the entire colony can be dried stained and studied under the microscope

Dr Ernest Dwight Chipman, San Francisco There is apparently a difference in the virility of strains of fungi according to their geographic distribution This is especially true of ringworm The small spored ringworm of the scalp as seen in California is evidently much more amenable to treatment than in many other places, so much so that simple remedies, as 1 per cent basic fuchsin ointment, will often speedily effect a cure This is in line with my experience with the epidermophyton in which 1 per cent chrysarobin and 2 per cent white precipitate, combined, have seemed sufficient, although Dr Ormsby has apparently required stronger applications for his cases

Dr Frank W Cregor, Indianapolis I have several of these cases under my care, and they give me a great deal of trouble We have been accepting our clinical diagnosis of eczema, and have neglected the use of our microscopes The usual therapeutic measures do not relieve these cases, and I have been at a loss to know why I only got good results when I used strong applications of sulphur This paper clears up the situation, and we may expect better results in the future

Dr Clarence J Broeman, Cincinnati I would like to ask the authors whether they traced the etiology to any definite source?

Dr James Herbert Mitchell, Chicago We have had one case in which the eruption coexisted with syphilis Both conditions were recognized, and the lesions of both disappeared under appropriate treatment Vesicles may be absent in certain stages of the disease, but at one period or another vesicles will be found The absence of any eczematoid changes preceding the vesicles is evidence that the fungus is the primary etiologic factor, and not a secondary invader We have not been able to determine the sources of infection other than its association with eczema marginatum of the groin, and its occurrence in different members of a family

Dr Oliver S Ormsby, Chicago We found that the ointment we described was better than chrysarobin It seemed to kill the parasite and cause it to disappear, whereas after chrysarobin we found the dead stained parasite There was no doubt as to the specificity of these cases There was no evidence nor history of preceding trouble, no inflammatory process of the skin All our cultures were obtained from cases where the superficial lesions had been removed We hope to go further into the mycology of these cases and make a report at some subsequent time

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Rupture of Uterus Under Pituitary Extract—Five cases of fatal rupture of the uterus are reported by V Marcondes from the Maternity at São Paulo, Brazil The women had all been attended by midwives who gave the pituitary extract, and they were practically moribund when brought to the hospital, Dr Marcondes protests against the use of pituitary extract by the ignorant, urging that midwives should be prohibited from using such a powerful remedy In Spain this has been done The *Revista de Medicina y Cirugia* of Havana has also published a recent article warning against the use of pituitary extract in ignorant hands The writer Arteaga reports a case in which the midwife had given large doses of pituitary extract without effect, and he found transverse presentation but he was able to perform version and the woman escaped mishap Rio physicians have also recently been discussing the dangers from abuse of pituitary extract Marcondes exclaims in conclusion that in lay hands it is actually a social scourge His article appeared in the *Annaes Paulistas de Medicina e Cirurgia* 1916 iv 84

THE EFFECT OF POTASSIUM IODID ON THE LUETIN REACTION *

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About a year ago Sherrick [1] reported that "a positive pustular or nodular luetin reaction can be obtained in 99 per cent of all persons irrespective of the presence of syphilis, by the administration of potassium iodid, either simultaneously, or shortly before or after the intradermal test Other substances, such as agar and starch, when injected intradermally, will give a similar reaction when potassium iodid is administered," and other drugs containing iodin were found to have a similar effect

These observations were considered of such importance, not only in connection with the luetin test, but also in relation to anaphylactic phenomena in general and skin reactions in particular, that we have been studying the effect of iodids, bromids, chlorids, ether, chloroform and other drugs on the luetin, tuberculin and other skin reactions The results with the iodids have proved definite and confirmed Sherrick's observation in practically every particular, since this drug is widely used, particularly in the very class of cases in which the luetin test is most likely to be employed in diagnosis, we have considered it advisable briefly to report at this time our observations regarding the influence of the iodids on the luetin reaction

All of the luetin tests were conducted with Noguchi's luetin so diluted with normal salt solution that 0 1 c c contained the proper dose

The regular intracutaneous luetin test was conducted among a selected group of laboratory assistants and medical students, all of whom were known not to be syphilitic, in good health and yielding negative Wassermann reactions with all antigens All tests were negative and showed at most but a faint area of erythema about the needle puncture which subsided entirely in forty-eight hours One week later all of the men began taking a saturated solution of potassium iodid in doses of from 10 to 15 drops according to a regular schedule extending over from one to three days, followed by a second luetin test In every man but one, well marked reactions followed, characterized by a wide inflammatory areola, edema and a firm, deeply seated central nodule of a deep red which in all instances underwent necrosis with the formation of a small pustule In our experience the pustules healed rather slowly, especially if large doses of potassium iodid had been taken

Clinically these reactions resemble the ordinary luetin reaction very closely, the deep seated lesion and the tendency to pustulation are, however, more distinctive of the reaction under the influence of iodids

Marked reactions were also observed following the administration of varying amounts of a saturated solution of potassium iodid among a group of patients suffering with various chronic diseases, all of whom had yielded negative luetin tests a month previously and negative Wassermann reactions with all antigens

In a few instances in which the luetin test was repeated in normal nonsyphilitic persons who were not taking potassium iodid, and to test the possibility of a previous injection sensitizing the person to luetin protein, the results were negative

In a number of instances 0 1 c c of a sterile 0 5 per cent solution of agar agar was injected intracutaneously at the same time as luetin, positive reactions usually of a severer character followed in all instances during or shortly after the administration of potassium iodid

Pustular reaction in a healthy nonsyphilitic person following the intracutaneous injection of 0 1 c c luetin immediately after the administration of 30 drops of a saturated solution of potassium iodid a day over a period of three days A similar reaction at the site of a former preliminary luetin injection followed about seven days later

The amount of potassium iodid capable of producing these results among nonsyphilitic individuals varies considerably, and is apparently somewhat dependent on individual susceptibility Persons whose skins are for some unknown reason unduly susceptible to the effects of any protein skin test react in a most marked manner to the smaller doses, it is of interest to note that several of these persons were believed to have latent tuberculous lesions in the lungs We have observed well marked reactions following the intracutaneous injection of luetin, after the administration of 10 drops of a saturated solution of potassium iodid once a day over a period of three days

As pointed out by Sherrick, the administration of potassium iodid may cause the site of a former luetin injection to develop inflammatory phenomena Our experience corroborates his observation, although we found this to occur rather irregularly For example, 10 drops of a saturated solution of potassium iodid three times a day over a period of three days caused in the majority of men a reaction at the site of an injection of luetin given from seven to ten days previously In one instance this reaction was delayed for almost three weeks Among a group of patients no reactions were observed at the site of a former luetin injection given from four to six weeks previously after the administration of 90 drops of a saturated solution of potassium iodid

It is probable that the administration of iodids has been responsible for the production of a proportion of the "torpid or "delayed" luetin reactions At least we have observed reactions to luetin among normal persons when potassium iodid was administered from one to three weeks later

Similar results have been observed experimentally among guinea-pigs and rabbits, although less marked and more difficult of interpretation, owing, in part at

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* From the McManes Laboratory of Experimental Pathology of the University of Pennsylvania

[1] Sherrick, J W The Effect of Potassium Iodid on the Luetin Reaction, The Journal A M A, July 31, 1915, p 404

least, to the difficulty experienced in injecting these animals intracutaneously

In all these experiments, potassium iodid was administered by the stomach tube in doses corresponding to body weight, the luetin and agar skin tests were conducted with the same products and with the same amounts of each

Guinea-pigs were found somewhat more susceptible than rabbits Preliminary skin tests were negative, producing no apparent reaction after the lapse of forty-eight hours, or at most but a small nodule at the site of injection

Among the guinea-pigs, positive reactions usually followed the administration of from 45 to 120 grains of potassium iodid per 132 pounds of body weight Among the rabbits we found generally that it was necessary to administer 45 grains per 132 pounds of body weight each day for a period of from three to eight days before definite reactions to the intracutaneous injection of luetin and agar could be elicited While a number of the reactions among these animals were of the pustular variety, they were generally milder than those observed among persons, and the "lighting up" of previous injections occurred but seldom

It may also be stated here that a luetin prepared by cultivating *Spirochaeta pallida* in a fluid medium, centrifuging and washing the spirochetes once with normal salt solution, resuspending in normal salt solution, heating at 60 C for an hour, and preserving with 0 25 per cent tricresol yielded reactions among syphilitics, but proved less irritating and produced much milder reactions among normal persons taking potassium iodid, owing, in part at least, to the absence of ascites-agar present in the luetin as ordinarily prepared

CONCLUSIONS

1 Well marked positive luetin reactions were observed among a group of healthy nonsyphilitic persons following the administration of potassium iodid

2 Similer results were observed among nonsyphilitic persons suffering with various other diseases

3 Somewhat severe reactions were observed following the intracutaneous injection of 0 1 c c of 0 5 per cent agar-agar

4 The strongest reactions were observed when the luetin was injected during or immediately after the ingestion of potassium iodid

5 Positive luetin reactions were observed among normal nonsyphilitic persons as late as one month after the ingestion of large doses of potassium iodid

6 In some instances the administration of potassium iodid caused the site of a former luetin injection to develop inflammatory phenomena progressive to pustulation

7 Similar but less marked reactions to luetin and agar were observed among guinea-pigs and rabbits following the oral administration of potassium iodid

8 Accordingly a positive luetin skin test has little value in the diagnosis of syphilis among persons who are taking or have recently taken potassium iodid The amount of iodid capable of producing these reactions varies considerably, also the length of time following the ingestion of iodid when this reaction to luetin may follow For these reasons physicians should very carefully rule out the possible influence of iodids before conducting the luetin skin test

SPLENECTOMY IN PERNICIOUS ANEMIA

STUDIES ON BONE MARROW STIMULATION *

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In the study of diseases of the blood and particularly of the effects of therapeutic procedures in such diseases it is necessary that one should be able to estimate by reliable criteria any alteration of the relative rate and degree of destruction and regeneration, at least of the formed constituents of the blood, the erythrocytes, leukocytes and platelets Such information is particularly desirable in pernicious anemia, in which the spontaneous course of the disease is so bizarre Marked improvement, usually called a remission, occurs frequently in the course of the disease and may easily be attributed to any incidental therapeutics,

The methods for studying the processes of blood destruction and regeneration are few The enumeration of the formed elements may or may not be of value It is evident that a given number of a blood element merely represents the balance of destruction and formation The red cell destruction can be studied by the excretion of urobilin, and perhaps in certain instances by estimating the bile pigments in the blood[1] Sellards and Minot[2] have pointed out that the study of the tolerance to injections of hemoglobin in man may perhaps furnish valuable information concerning erythrocytic destruction The presence in the peripheral blood of the "bodies" described by Rous and Robertson[3] may also throw light on this subject

The white corpuscle destruction in certain instances may perhaps be studied by the estimation of certain nitrogenous products in the urine

There are no known methods for studying the destruction of the blood platelets, since we do not know their ultimate fate We merely know that their life is short, being from three to six days

The rate and degree of formation of the formed blood elements can be studied clinically in a number of ways The chief source of these elements is the bone marrow Thus, in order to gage the power of regeneration and formation of the formed elements, one must study the activity of the marrow One must scrutinize, not only the increases of bone marrow activity, but also the intensity and quality of that activity and its possible relation to the therapeutic procedure

Evidence of increased activity on the part of the marrow in the production of red cells may be shown by an increase of young forms of red corpuscles The presence of increased numbers of reticulated red cells, especially of a certain type, the presence of blasts, Howell-Jolly bodies, polychromatophilia and certain types of stippling should be considered in studying the activity of the bone marrow Variations of size

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[*] From the Medical Service of the Massachusetts General Hospital

[*] Read before the joint meeting of the Section on Practice of Medicine and the Section on Surgery General and Abdominal at the Sixty Seventh Annual Session of the American Medical Association, Detroit June 1916

[*] This paper and those by Drs Krumbhaar and Miller, which follow are part of a symposium on the spleen The remaining papers by Dr C H Peck D C Balfour and R D McClure, and the discussion will be published in our next issue

[1] Blankenhorn Tr Assn Am Phys, 1916

[2] Sellards and Minot Jour Med Research 1916 xxxiv, 469

[3] Rous and Robertson Tr Assn Am Phys 1916

and shape of the red cells may be of significance in certain cases

The decreased activity in the production of red cells may be evidenced by an absence of the factors indicating activity A rising red count does not necessarily mean an increased activity of the marrow, for the count may rise as the result of a lessened destruction Increased activity is entirely consistent with an anemia when formation does not compensate destruction Likewise, an extreme grade of anemia may be associated with decreased destruction and caused by decreased formation

Evidence of the activity of the marrow in the production of white cells may be seen in the polynuclear count and perhaps in certain changes in the Arneth formula A diminished activity is associated with a low polynuclear count and a resulting relative lymphocytic increase In some instances with diminished activity of the bone marrow the liver and finally other structures may revert to a fetal condition, and white cells resembling fetal cells may be found in the blood stream, especially in cases of tumors involving marrow

Konnecke,[4] by injections of nucleinate, and von Decastello and Krjukoff,[5] by injections of gelatin, have suggested that the degree of polynuclear leukocytosis caused by these substances furnishes an indication of the functionating ability of the marrow From our study of this procedure we feel we gain some information concerning the functionating ability of the marrow in regard to its ability to form and send into the circulating blood leukocytes, but not necessarily information concerning the functionating ability of the marrow as a whole

Increase of the blood platelets in the peripheral blood is also indicative of an increased activity on the part of the marrow supplying the blood platelets The size, shape and character of these elements is probably also important in determining the activity of the marrow

When the marrow is functionating above or below normal the three main elements are not necessarily equally affected The effect may be entirely or predominatingly on one or two of these elements It is thus necessary in studying the degree of bone marrow activity to consider not only one but all the factors involved

We have followed our cases of blood disease in their spontaneous course and after treatment especially from the point of view of the degree of bone marrow activity

Our, as well as other, previous studies have shown that while the amount of destruction of red corpuscles in pernicious anemia is somewhat reduced as a rule after splenectomy, yet this reduction occasionally occurs without therapy The spontaneous course of the disease is so irregular and variable that it cannot be denied that it is possible to parallel the reduction of the destruction of the red cells after splenectomy with similar reductions without any treatment Yet it seems probable that the destructive agents are modified to some extent after splenectomy It is certain, however, that the destructive processes involving the red cells are still present

Our fifteen cases of pernicious anemia subjected to splenectomy, in accord with other reported cases, show that the important features of the disease, namely, the typical blood picture and relapses with marked destruction still persist As von Decastello[6] and others have pointed out, it is possible to attribute improvement to an increase in blood formation as well as to a decrease in blood destruction We have, therefore, submitted our cases of pernicious anemia to a critical study of the effect of splenectomy on the blood-forming organs with a view of determining if possible the value of this procedure in altering the activity of the bone marrow

Fifteen cases,[7] which include all of the patients with pernicous anemia operated on by splenectomy at the Massachusetts General Hospital, were studied (from November, 1914, to May, 1916) Ten of these patients were operated on by one of us (Vincent) The other five were operated on by Dr C A Porter, to whom we are indebted for the privilege of including the operative findings of his cases

One patient with a red count below 1,000,000 died the day after operation, presumably of postoperative shock There were no other immediate postoperative deaths, thus giving an immediate operative mortality of 6 6 per cent The low immediate mortality indicates that with the proper selection of the time of operation in the course of the disease any considerable operative mortality is not to be expected

Of the fourteen patients who survived, the operation in one case was too recent to afford any data Of the remaining thirteen patients, one, operated on two and a half months ago, remains in the hospital on account of thrombosis The other twelve left the hospital three to six weeks after operation, at which time the large majority presented no great change in their blood counts, and they all felt better, looked better, and were less yellow In all of them the blood picture was that of pernicious anemia Four patients showed considerable immediate and progressive improvement in the red counts and hemoglobin Two of the four were transfused, one two days before, the other two days after operation None of the other patients were transfused within ten days of operation

The condition of these thirteen patients was ascertained as far as possible two months after operation Three could not be said to have changed materially, particularly in their blood counts One case showed a slight increase and one a moderate increase in the red cells Eight showed a marked increase in the count of red cells The red counts of these eight cases averaged approximately 4,000,000, with a corresponding improvement in their clinical condition Nevertheless the diagnosis of pernicious anemia could be made from the blood films

Of the thirteen patients, there were ten in whom six months had elapsed since operation At the end of six months five of these ten patients had a relapse Four of these five at the two months' period had presented very marked improvement The fifth patient never showed any great improvement

At the end of a year after operation we had received no information concerning two patients These two patients had no relapse within six months Two patients still alive had not yet gone a year after splenectomy The patient who presented no improvement at the end of the second month period and was relapsing at the sixth month period was dead within a year after operation Of five remaining patients, only one had certainly gone a year without a relapse This patient, however, suffered a typical relapse and died sixteen months after splenectomy One of the remaining four died sixteen months after operation in his second relapse Another after sixteen months is now having a very serious relapse after several minor relapses Still another is having his second serious relapse at the end of the year period The last patient to be accounted for at the end of the year period had a relapse at six months He was markedly improved by transfusion, and now has 3,000,000 red corpuscles

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[4] Könnecke Deutsch Arch f klin Med, 1914, cxv, 177

[5] Von Decastello and Krjukoff Med Klin, 1911, vii, 225, 267

[6] Von Decastello Deutsch med Wchnschr, 1914, xl, 639, 692

[7] Lee, Vincent and Robertson The Journal A M A, July 17, 1915, p 216, reported five of these cases

The end results of splenectomy certainly fail to show any permanent results from this procedure

The eventual progress of the disease is not changed Nevertheless, it is striking that there was in eight out of thirteen cases a considerable temporary improvement in two months, which persisted in some cases to six months This improvement was marked though not necessarily more marked than the improvement often seen occurring spontaneously, but it seemed to occur rather uniformly after this procedure

The formed blood elements derived from the bone marrow have been followed in these fifteen cases Observations on these elements are presented below

Leukocytes—Immediately after splenectomy, as has been the usual experience of others, we observed a leukocytosis, varying from 10,000 to 35,000, with increased polymorphonuclear percentage This occurred within twenty-four hours after splenectomy and subsided within a few days As pointed out by Cabot,[8] the white count varies with the progress of the disease, being higher when the number of red cells is higher We found, as have others, that persistently after splenectomy there was a distinct tendency to a higher level of the white count than occurred in the usual course of pernicious anemia, in which there is usually a leukopenia with often an absolute diminution of polynuclear leukocytes This increase was both lymphocytic and polymorphonuclear Perhaps more often there is a relatively greater polymorphonuclear than lymphocytic increase The polymorphonuclear cells, when increased, tended to give a normal Arneth picture, as contrasted to the abnormal right handed shift which is the usual picture in the spontaneous course of this disease, as pointed out by Briggs[9] Occasionally a slight eosinophilia occurred

In general, the leukocytosis immediately after splenectomy and the level of leukocytosis for some weeks afterward contrasted with the average before operation gave a rough index of the future reaction in the red cell forming part of the bone marrow The patients with the highest leukocytosis tended to show the greatest improvement after splenectomy Per contra, the patients who showed only a slight increase after splenectomy eventually showed little improvement after this procedure Such figures do not definitely prove this, but they strongly suggest that a persistently very low polymorphonuclear count in this disease is of value as one of the indicators of bone marrow exhaustion Under such conditions little improvement is to be expected from any therapeutic measures directed at increasing the activity of the bone marrow

Platelets—The number of platelets in pernicious anemia is usually low Like the leukocyte count, the number of platelets tends in general to follow the curve of the red cells in the usual course of the disease The platelets show a definite increase three to seven days after splenectomy This increase usually takes the platelets not only above the average count in pernicious anemia, but often well above the normal, in one of our cases even to 900,000 This increase is usually persistent, though fluctuations occur Besides the increase in platelets, there are changes in their morphology, A tendency to abnormally large platelets occurs in pernicious anemia After splenectomy the presence of a considerable number of very large platelets is striking There also seems to be an abnormal variation in shape Like the increase in the white count, the platelet increase seems to be of some value as an indicator of the ultimate reaction of the bone marrow in forming red cells Likewise, a persistently low platelet count in pernicious anemia seems to be one of the criteria of bone marrow exhaustion

In this connection we have been impressed by the association of the increase of platelets and thrombosis Thrombosis is not an uncommon complication of splenectomy It has been reported as a postoperative cause of death Of course the platelets are not the sole factor in thrombosis The immediate and directly exciting cause may be infection or some unknown agent We have noted thrombosis or phlebitis in three of our cases

In one case it was noted on the fifth day after operation and involved many veins In the second case it was noted after three weeks In the third case it was first observed when the patient reported at nine months In a case of splenectomy in pernicious anemia of Dr W S Thayer, studied by one of us,[10] thrombosis was noted on the ninth day In this case extensive thrombosis was the cause of death In our second case of thrombosis a severe gastro-intestinal disturbance was present on the tenth day, although the phlebitis was not evident until the twenty-first day All of these cases had at the time of the phlebitis a very large increase of platelets The majority of our other patients had some days after operation, at the time of marked increase of the blood platelets, vague gastro-intestinal symptoms of varying severity These symptoms were unlike any that they had had before operation and furthermore were quite different from the gastro-intestinal symptoms, so common after any abdominal operation The association of this condition with thrombosis or phlebitis of some of the mesenteric veins is possible This association is of course not proved It may not be amiss to point out that thrombosis in the usual course of pernicious anemia is extremely rare, but apparently is not uncommon after splenectomy We are inclined to believe that the thrombosis is in some way related to the marked increase of platelets

Howell-Jolly Bodies—There occur in the red cells, particularly after splenectomy, and in other conditions often associated with grave anemia, certain round bodies known as Howell-Jolly bodies The nature of these bodies is not clearly understood, although they are fairly generally assumed to be nuclear fragments We were able to find a very few of these bodies in three of our cases before operation It is probable that these Howell-Jolly bodies could have been found in the other cases if the blood had been subjected to a similar prolonged search They occurred constantly in every case after operation These bodies usually appeared in small numbers the day after splenectomy, and gradually increased In some instances 25 per cent of the red cells contained them The usual percentage was from 2 to 10 Their percentage fluctuated, but they were always present in fair numbers as long as we made observations Their morphology varied considerably, there occurred differences in regard to size, situation in the red cells, multiplicity, and their association to reticulated and polychromatophilic cells We are unable at present to correlate positively variations in number or type with the clinical progress of the disease We are inclined to agree with the general belief that in some way these bodies are related to an increase of bone marrow activity or irritation, or possibly to some change of threshold of output of red cells

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[8] Cabot Modern Medicine Osler and McCrae 1913

[9] Briggs Am Jour Med Sc 1914 cxlviii 413

[10] Minot Denny and Davis Arch Int Med 1916 xvii 101

Blasts—Ten of the eleven cases on which we have adequate data presented within a few days after operation, like other reported cases, a shower of blasts of varying degree The maximum number of blasts seemed to occur approximately two to ten days after operation The duration of the blast crisis varied widely and in a few cases persisted for some weeks The intensity of the reaction in blasts could not be anticipated by the preoperative number of blasts in the blood The blood of one patient who presented a large number of blasts after operation showed a very rare blast on repeated examinations over a long period of time before operation It has been our experience that a shower of blasts often precedes a spontaneous remission This remission may be quite transitory and slight However, a shower may be seen just before death After operation a shower of blasts, especially when persistent, seemed to be associated with an ultimate improvement The findings were not constant and we do not feel that the presence of blasts even in considerable numbers at any stage of the disease including after splenectomy is of much significance as to the future course of the disease

Reticulated Red Cells—The percentage of reticulated red cells may perhaps be taken as a measure of the hemopoietic activity of the bone marrow Normally, about 0 8 per cent of the red cells are reticulated In the spontaneous course of pernicious anemia one sees wide fluctuations in the percentage of these cells containing a "reticulum" vitally stained with brilliant cresyl blue This percentage varied in our cases, from 0 to 20 A high percentage of reticulated cells probably indicates an increased activity of the part of the bone marrow that produces red cells This increased activity of the bone marrow is not necessarily accompanied by either a rise in the count of the red corpuscles or in clinical improvement, since this may or may not be counterbalanced by an increased destruction Likewise, in the event of decreased activity of the bone marrow, an associated decrease in the blood destruction may leave the number of the red cells and the clinical picture unchanged In order to form any estimation of the bone marrow activity, as indicated by the reticulated cells, it is necessary to make continuous observations over periods of time Occasional observations are of no value, as they may indicate only transitory tendencies However, our data show that curves plotted from frequent observations are reliable indicators of bone marrow activity and are the forerunners of increased red cell counts and of clinical improvement in the absence of excessive blood destruction

Some studies, as yet incomplete, of the character of the reticulated cells, not only in pernicious anemia, but also in other conditions, strongly suggest that the character of these cells is at least as important as the percentage in determining the intensity and permanency of the bone marrow activity We consider of particular importance the presence of heavy, knotted reticulum, usually in the center of the cell Such a reticulated cell is found in fairly large numbers under the recognized conditions of very active blood regeneration, as we have seen persistently in hemolytic jaundice and temporarily after direct hemorrhage in normal persons

Other characteristics of these reticulated cells that seem to us of probable significance are the size of the reticulated cell, the hemoglobin content, the amount, quality, granulation, and distribution of the reticulum Also of doubtful significance in regard to bone marrow activity is the presence, which we have noted in a few cases, of the hemoglobin-free reticulated cells or bodies, resembling those described by Rous and Robertson which they consider as probably red cells in the stage of destruction We are inclined to believe that when the red cells contain a few scattered, short strands of reticulum, particularly when arranged in the periphery of the cell, the actual percentage of reticulated cells is of slight significance

In general, two to five days after splenectomy in pernicious anemia we found a slight temporary rise in the reticulated cells These findings coincide with the blood findings at the time of discharge from the hospital about three weeks later At that time the red count was usually not much increased, but in the event of a persistent increase of the reticulated cells we found marked clinical improvement associated with an increased red count This was particularly marked in the two patients on whom blood transfusion was performed at the time of operation In these patients this rise persisted and reached in eight to twelve days a level of about 15 per cent of reticulated cells, chiefly of the knotted centrally-placed type In the event of a short and slight temporary rise in the reticulated cells, if an increase in the red count developed later, there first appeared a second and this time a considerable rise in the reticulated red cells This rise was usually evident about three weeks after splenectomy and was often associated with a shower of blasts With the appearance of a definite remission, when the red cells approached normal, the reticulated red cells fell to normal figures or lower, with the removal of the necessity of abnormal bone marrow activity

The degree of the response varied Those cases in which increases of reticulated cells had been observed either in the spontaneous course of the disease or after transfusion usually showed greater increases after splenectomy However, we were able to observe increases in reticulated red cells after splenectomy in two cases in which no essential increase in reticulated red cells had previously been noted, either in the spontaneous course or after transfusion These increases tended to be relatively slight, since in such instances it is probably safe to assume that we are dealing with an exhausted bone marrow, apparently incapable of reacting to anything except the strongest stimulation, that is, the changes, whatever they may be, that take place after splenectomy Two patients in severe relapse after splenectomy have shown a truly remarkable blood picture of bone marrow reaction following transfusion This was not seen in three others

The increased reacting power of the bone marrow under the influence of transfusion in the first two cases seems to be related in some way to the absence of the spleen

The further study of the blood films stained by Wright's stain showed only the characteristics that have been noted previously by us and others Our observations on polychromatophilia, anisocytosis and stippling have furnished little additional evidence as to the functionating ability of the bone marrow

While the presence of blasts and of Howell-Jolly bodies is in some way related to the activity of change in threshold output of the bone marrow, we are unable to correlate definitely our data concerning them and those of the reticulated red cells The reticulated cells furnish the most reliable data concerning the activity of the erythrocytic elements of the bone marrow The increase in the platelets and the polynuclear leukocytes after splenectomy in pernicious anemia furnishes further evidence of the effect of this procedure in stimulating the bone marrow of these cases

It is to be noted that splenectomy in pernicious anemia has in nowise a specific stimulating effect on any one portion or on any one function of the bone marrow It apparently acts grossly on all portions, though the effects are seen at different periods of time in relation to the operation We attribute the temporary improvement in pernicious anemia after splenectomy to two factors first, an associated diminution in the blood destruction, and second, the associated increase in activity of the bone marrow We do not attempt to explain the precise mechanism by which splenectomy brings about an increased activity of the marrow Certain stimulating effects after splenectomy are seen almost immediately, as in the case of the increase in the polymorphonuclear leukocytes The increase in the platelets tends to occur somewhat later, and the main increase of the reticulated cells, when it occurs, seems to be inaugurated still later This effect on the part of the bone marrow which forms red cells is much more difficult to bring about and also is slower

While in general one assumes that the changes in activity of the bone marrow is induced by some unknown irritating or stimulating process, it is possible to explain certain features on other grounds It may be that, as Naegeli[11] has suggested, we have the threshold of output changed so that cells normally present in the bone marrow but not in the blood may appear in the peripheral circulation Perhaps the spleen normally may have some inhibitory effect on the bone marrow On the latter basis it is hard to explain the considerable leukocytosis, similar to that occurring in certain infections, the increase of platelets, and the occurrence at necropsy in pernicious anemia of a red bone marrow In favor of this assumption one may point to the appearance of Howell-Jolly bodies and certain other characteristics of the red cells that cannot be positively related to such characteristics of the red cells as reticulation, which are generally assumed to indicate, not only the earlier appearance of these cells, but also an actual increase in the formation It seems probable that both these considerations play a part in the changed picture We use the term stimulation of the bone marrow in the general sense of indicating the inauguration of the changes

By the use of these methods we conclude that one finds stimulation of the bone marrow in pernicious anemia frequently occurring spontaneously One may find stimulation of the bone marrow usually associated with improvement after transfusion and after splenectomy Splenectomy seems to result in the greatest stimulation of the bone marrow of any known therapeutic measure It acts on the whole bone marrow and not only on the portion that forms red cells However, splenectomy does not alter the essential course of the disease While more constant stimulating effects are seen after splenectomy, yet we can roughly parallel any individual case of bone marrow stimulation after splenectomy with a case of bone marrow stimulation that occurred either spontaneously or after transfusion

It is evident that from splenectomy one can attain stimulation but once Transfusion, while perhaps of less constant and of less active effect, has two great advantages It is relatively simple and can be repeated a number of times Transfusion does not modify the destructive agencies at work in pernicious anemia These considerations must be carefully weighed in advising any therapeutic procedures in this disease

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LATE RESULTS OF SPLENECTOMY IN PERNICIOUS ANEMIA

A STATISTICAL AND CRITICAL REVIEW *

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The striking improvement that has been shown to follow removal of the spleen in such diseases as hemolytic jaundice and Banti's disease has naturally led to an extension of this clinical procedure to allied conditions In 1913 three investigators, Eppinger,[1] Decastello[2] and Klemperer,[3] working independently, applied splenectomy to the relatively common and grave disease, pernicious anemia It is interesting that Eppinger was led to adopt this procedure by observing after splenectomy a diminished output of urobilin and other evidences of decreased hemolysis Decastello, on the other hand, had noted the improvement that followed splenectomy in the related conditions, hemolytic jaundice and Banti's disease, whereas Klemperer was influenced by the clinical observation that splenectomy for such conditions as rupture of the spleen was in some instances eventually followed by polycythemia

Such marked improvement was noted in these earlier cases that the procedure was quickly and widely repeated, chiefly in Germany and in this country, so that a fairly large group has already become available for study More prolonged observation, however, has showed that besides a considerable mortality from the operation and postoperative complications, very few of the patients continue steadily to improve, in almost all the characteristic blood picture of pernicious anemia remained, and not a few died from relapses of the disease in the first year or two after operation The object of this paper is to ascertain as far as possible by a correlation of the published reports, with later results obtained by personal communication, just how valuable splenectomy has thus far proved to be in pernicious anemia

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[11] Naegeli Blutkrankheiten und Blutdiagnostik, Leipzig 1912

* From the John Herr Musser Laboratory of Research Medicine University of Pennsylvania Philadelphia

* Read before the joint meeting of the Section on Practice of Medicine and the Section on Surgery General and Abdominal at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Eppinger H Berl klin Wchnschr 1913 xxix 2409

[2] Decastello A von Deutsch med Wchnschr 1914 xl 639 later reports by personal communication to the author

[3] Klemperer, G and Hirschfeld H Therap d Gegenw 1913 liv 385

Although it has been impossible to get additional reports from some of the German authors, and of some patients who have been lost sight of, nevertheless the results obtained in the last two and one half years are sufficiently concordant to give evidence of some value. In drawing conclusions from any such review, however, it must be remembered that certain difficulties are unavoidable. For instance, the dividing line between pernicious anemia and some of the other primary blood diseases is necessarily such a shadowy one that the possibility of an incorrect diagnosis must always be borne in mind. Then, too, the concept of pernicious anemia varies so much with different authorities that cases included as such by one author might easily be rejected by another. Thus one of the earlier cases of splenectomy that was followed by marked and long-continued improvement, when subjected to critical analysis, seems to the writer rather a case of acquired hemolytic jaundice than of true pernicious anemia. In another case reported as pernicious anemia, the diagnosis was later changed to hemolytic jaundice on account of the subsequent appearance of acholuric jaundice with diminished resistance of the erythrocytes. As such variations in diagnosis are apt to include less serious diseases under the head of pernicious anemia, or diseases in which splenectomy is already known to be of benefit, the present statistics will be correspondingly favored by such inclusions. In applying the present figures to prognosis, however, it is fair to offset the inclusion of such cases with the results that must inevitably follow the better selection of cases and better preparation for operation. A third consideration is that the term pernicious anemia may later be found to include more than one clinical entity. (Compare the great variations that occur in the size of the spleen, in the bone marrow reactions, in the evidences of hemolysis, and in the duration of the disease.) If this were found to be true, it might well be that some of the apparently discordant results that have been observed after splenectomy are due to the fact that the operation was of value in one or more types and contraindicated in the others. The results of these studies are included in Table 1.

ANALYSIS OF RESULTS

From Table 1 it will be seen that of the 153 individuals whose spleens were removed, thirty died within six weeks, presumably from the effects of the operation, a mortality of 19 6 per cent. Of the remaining 123 patients, all but twenty-four showed a distinct improvement, both in general condition and in blood picture. Of the twenty-four individuals that survived the operation but failed to improve, a few were obviously harmed by it. To this group belongs Pappenheim's case, splenectomized at a favorable time, when the patient was entering a remission. The condition, nevertheless, was aggravated by the operation, the blood showed signs of increased destruction and a serious relapse began. The improvement noted in the majority of cases lasted varying periods. Thus at the end of six months, of fifty-three patients who had survived operation for more than six weeks and were still under observation, forty-four had still continued to improve and none had died, but nine had already relapsed.

TABLE 1—RESULTS OF SPLENECTOMY IN PERNICIOUS ANEMIA

Observers	References	Number of Cases	Postoperative Results			Total Deaths
			Deaths	No Improvement	Improved	
Decastello, A von	Deutsch med Wchnschr 1914 xl 639	13	4	1	8	7
Eppinger, H	Berl klin Wchnschr, 1913 xxix 2409	7	0	0	7	?
Fahreus, M B	Svensk Lak Forhand 1915 viii, 249	3	1	0	2	2
Fenckel	Verhandl d deutsch Gesellsch f Chir, 1914, xliii, 233	2	0	2	0	1
Florcken	*Verhandl d deutsch Gesellsch f Chir, 1914, xliii, 231*	2	1	0	1	1
Frangenheim	*Sitz d allg Aerzt Ver z Koln, Munchen med* Wchnschr, 1914, lxi, 1760	2	1	1	0	1
Giffin, H Z	Personal communication to the author	31	3	6	22	7
Gulcke	Verhandl d deutsch Gesellsch f Chir, 1914, xliii, 227	2	2	0	0	2
Hansing W	Med Klin, 1914, x, 1544	2	2	0	0	2
Hossli, H	Cor Bl f schweiz Aerzte, 1914, xliv, 1171	2	1	0	1	1
Klemperer, G	Therap d Gegenw, 1913, liv, 385	14	4	2	8	5
Lee, R	*The Journal A M A, July 17, 1915, p 216,* personal communication to the author	15	1	4	10	3
Longcope W T	Personal communication to the author	2	1	1	0	1
Percy, N W	Surg, Gynec and Obst, 1915, xxi, 360, personal communication to the author	19	2	2	15	4
Roblee, W W	The Journal A M A, March 6, 1915, p 796 personal communication to the author	2	0	0	2	1
Roemer	Berl klin Wchnschr, 1914, li, 669	2	0	0	2	1
Thayer, W S	Tr Assn Am Phys, *1914, xxix, 489, personal* communication to the author	2	0	0	2	1
Vogel, C	Personal communication to the author	7	3	1	3	4
Jagic, N von	Wien klin Wchnschr, 1914, xxvii, 1536	3	0	0	3	0
Single cases[4]		21	4	4	13	9
Total		153	30	24	99	53

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[4] The single cases were reported by various authors as follows

Anschutz Verhandl d deutsch Gesellsch f Chir 1914, xliii, 232
Baldwin, J F Med Rec, New York, 1915, lxxxvii, *230*
Brill, N E Tr Assn Am Phys, 1915 xxx, 547
Buerger, L, and Ottenberg, R Med Rec, New York, 1914, lxxxvi, 860, later report by personal communication to the author
Coleman, W Tr Assn Am Phys, 1914, xxix, 470
Dahl, R Hygiea, 1914, lxxvi, 471, later report by personal communication to the author
Harpole, W S Surg, Gynec and Obst, *1914, xviii, 243, later report by personal communication to the author*
Huber, O Berl klin Wchnschr, 1913, L, 2179, later report by personal communication to the author
Judell Personal communication from Dr Moffitt to the author
Mann, A T Journal Lancet 1915, xxxv 294
Moffitt, H C Am Jour Med Sc, 1914, cxlviii 817
Mosse, M Berl klin Wchnschr, 1913, L, 2088
Muhsam, R Deutsch med Wchnschr, 1914, xl, 380
Pappenheim, A Deutsch med Wchnschr, 1914, xl, 412
Penrose, C A South Med Jour, 1915, viii, 879
Pepper, O H P, and Austin, J H Arch Int Med, July, *1916,* p 131
Port, F Berl klin Wchnschr, 1914, li, 546
Rodman, J S Personal communication to the author
Stewart, F T Personal communication to author
Talley, J E, and Jopson, J H Personal communication to the *author*
Turk, W Deutsch med Wchnschr, *1914, xl, 371*

At the end of the first year after operation, there remained twenty-seven patients who were still under observation Of these, Decastello's series is the most important, not only because he and Eppinger were the first to try this procedure and therefore the cases could be followed for a longer time, but because the early successful results have been greatly modified by time Of six patients at the time of his publication several months after operation, four showed such great improvement that except for the microscopic appearance of the blood they might have almost been considered cured Two years later, however, two were dead and one was in as poor condition as before operation Of the other two important early series, Eppinger's and Klemperer's, it has proved impossible to get additional information The figures for the whole group of twenty-seven cases, however, show that the initial improvement has been maintained in less than half of the cases

TABLE 2—LATE RESULTS AFTER SPLENECTOMY IN PERNICIOUS ANEMIA

	After One Year	After Two Years
Number cases known	27	6
Still improved	11	3
Relapsed	7	2
Died subsequently	9	1

A small but interesting group is formed by six individuals that have been known to have lived two years or more after operation (Decastello 2, Giffin, Harpole, Huber, Thayer) Of these, Giffin's patient had had the disease for two and a half years, the anemia was not extreme at the time of the operation, and the spleen was much enlarged (1,640 gm) Improved by the operation, he died three years later from pneumonia In Decastello's two cases the disease had existed for less than a year, the anemia was severe, and the spleen but slightly increased in size Both patients improved after operation both clinically and as to the blood picture, but whereas one in a subsequent report was in poor condition, the other was without symptoms, although the blood picture was still that of pernicious anemia Harpole's patient was known to have had pernicious anemia for two years, and at the time of operation the anemia was moderately severe and the spleen twice the normal size After splenectomy there occurred immediately an active bone marrow reaction with marked clinical improvement The patient has continued in fair health, with only a slight anemia, but with persistence of spinal cord symptoms Huber's patient, who was considered moribund at the time of operation improved rapidly for seven weeks, relapsed, and later underwent a spontaneous remission After two and a half years, she was still in good condition and able to do her housework, but still anemic Thayer's patient, having had the disease one year, improved after splenectomy, although there was no bone marrow reaction After eighteen months the patient relapsed to the same condition as before operation and was last reported in poor condition

Estimation of the value of such a procedure as splenectomy in pernicious anemia must take into consideration not only the actual results obtained, but a comparison, as far as is possible, with the probable results if operation had not been undertaken Thus, whereas we have seen that splenectomy caused a quick and marked improvement in 64 per cent of all patients, natural remissions occurred at one time or another in over 80 per cent of the patients of Cabot's[5] series treated by the older conservative methods One cannot maintain from this that perhaps the improvement after splenectomy was only a coincidental remission because the onset of improvement was too closely and constantly related to the postoperative period, but it does offer some basis for the contention that other methods of treatment may yield results as striking as those following splenectomy However, from the aspect of duration of the disease the evidence is more in favor of the splenectomized series In Cabot's series, almost half died in the first year of the disease, and of the remainder, one third died in the next year As the duration of the disease in the splenectomized series had already averaged one and a half years before operation, they should be more properly compared with the remainder of Cabot's group By the end of the first year conditions in the splenectomized group were as follows Of thirty-three patients surviving the operation, twenty-four were still improved, three had failed to show improvement or had relapsed to their preoperative condition and six had died If postoperative deaths, however, were to be included, only about half of those whose fate was known were still alive at the end of the first year From both these points of view, therefore, there are no clear indications as to the value of splenectomy

The changes in the blood picture after splenectomy are striking and fairly constant Forty-seven cases are stated to have had a distinct postoperative blood crisis (appearance of normoblasts, megaloblasts, reticulated erythrocytes, Jolly bodies, etc , in larger quantities) , and as statements that the blood crisis failed to appear are very rare, it is fair to assume that such a phenomenon is at least a frequent occurrence In most of the patients who recovered the stimulation forms soon grew fewer in number and coincident with the signs of general improvement the hemoglobin and red cell count rose The color index, however, usually remained high As might be expected also, the nucleated forms became fewer or disappeared , and yet statements are almost unanimous that the microscopic features of the blood (tendency to macrocytosis, poikilocytosis, etc), even in many cases that showed almost normal counts, remained suggestive of pernicious anemia Those patients who died within the first six weeks after operation showed either very slight increase in the blood picture or an actual deterioration, whereas death occurring after that period was in many cases preceded by a distinct improvement in the blood picture with the usual signs of a remission

TABLE 3—RESULTS ACCORDING TO AGE OF PATIENT BASED ON ONE HUNDRED AND TWENTY ONE CASES

Age Decade	Number Cases	Postoperative Results			Subsequently Died
		Deaths	Not Improved	Improved	
3d	8	2	1	5	1
4th	23	4	2	17	2
5th	43	5	2	26	8
6th	28	4	5	19	6
7th	9	5	2	2	1

Those few patients who up to the present time have continued well after operation must also be taken into consideration By the older methods of treatment, Cabot in the first edition of Modern Medicine stated that six out of 1,200 cases after six years of health might be said to have been cured In the second edition this number was reduced to three May it not develop that a larger percentage of such "cures" will follow splenectomy, even though the blood picture does not return absolutely to normal? Another point brought out by study of the blood picture at the time of operation is that if the operation is undertaken before the blood has reached an extreme degree of deterioration, not only is the operative risk lessened, but the improvement is greater and more lasting In any case it is wise to precede it with one or more transfusions

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[5] Cabot R C Modern Medicine Ed 2 iv 639

TABLE 4—RESULTS ACCORDING TO DURATION OF DISEASE, BASED ON NINETY FIVE CASES

Duration	Number of Cases	Postoperative Results			Subsequently Died
		Deaths	Not Improved	Improved	
Under 6 months	17	4		13	
Six mos to 1 year	26	4	3	19	3
One to 2 years	36	3	6	27	8
Over 2 years	16	6	1	9	4

The average age of the patients at the time of operation was 45, the average duration of the disease at that time 1 6 years Sex has not been found to exert any influence on the results If the results are analyzed in groups subdivided according to age, it appears (as one would expect) that less favorable results are obtained in patients in the sixth and seventh decades A similar arrangement on the basis of duration of the disease, shows that the best results are obtained (after the operation has been successfully passed) in those patients who have had the disease for less than one year

When arranged according to the degree of anemia at the time of operation, one fact is patent, that the operative risk is much greater in those cases in which hemoglobin is below 20 This is, of course, for this disease, a lower level even than that of one million erythrocytes

Except for this point, on account of the great fluctuations in blood counts incident to the disease and following transfusions, it is difficult to estimate whether or not the previous condition of the blood has any marked effects on the result obtained The impression is gained, however, that the best results follow splenectomy in those cases that are not extremely anemic at the time of operation and that have shown considerable fluctuations in the blood picture

Information as to the size of the spleen was secured in eighty-nine cases In twenty-eight cases (31 per cent) the spleen was either small or approximately normal in size In forty-one cases (46 per cent) the spleen was slightly enlarged (between 250 and 500 gm), and in twenty cases (23 per cent) it was considerably enlarged In other words, although seldom palpable before operation, it was distinctly enlarged in over two thirds of the cases If the results of splenectomy are subdivided according to the size of the spleen, it will be seen that better postoperative results were obtained in the cases with enlarged spleens The third group in this arrangement, however, is the only one that could be said to have fared better than another as regards the ultimate outcome of the disease

THE EFFECT PRODUCED BY SPLENECTOMY

Whatever the cause of the distinct improvement after splenectomy in those patients who survive the operation, it is obvious that it is not due to the removal of the sole cause of the disease If Eppinger's theory of thickened arteriole walls in the spleen with consequent damming back and destruction of red cells in the splenic pulp were correct, removal of the spleen should indeed cure the disease, but our studies show that this is not the case On Eppinger's theory, also, the characteristic remissions of pernicious anemia would be difficult to explain

The postoperative blood crisis discussed above, and the subsequent improvement in the blood picture, decrease in urobilin, etc, indicate both that a stimulus has been applied to the bone marrow and that a source of blood destruction has been removed Lee's findings of an increased number of platelets after splenectomy would also support the bone marrow stimulation theory Hypotheses to explain these phenomena have been unsatisfactory and the relevant experimental evidence often contradictory Klemperer believes that the bone marrow activity is induced by removal with the spleen of an inhibiting hormone, but from experiments in our laboratory we have found (in normal animals, to be sure) not only that this bone marrow activity does not occur until after several months have elapsed (Pearce and Pepper[6]) but also that fresh splenic extract stimulates instead of inhibiting the bone marrow (Krumbhaar and Musser[7]) The cause for the blood crisis, therefore, must probably be sought elsewhere, perhaps, as has been suggested, in bone marrow stimulation from metabolic products or from abnormal constituents of the erythrocytes that are allowed to remain in the blood by the removal of the spleen (Decastello) It is also difficult to prove that the lessened hemolysis after splenectomy, as shown by decrease output of urobilin, is actually due to the absence of the spleen Neither normal spleens nor those removed at operation in cases of blood disease (Coleman, Stewart) can be shown to possess demonstrable hemolytic activity, and studies of the blood entering and leaving the spleen have also failed to throw light on this supposed function of the spleen (Krumbhaar and Musser[7])

TABLE 5—RESULTS ACCORDING TO PREOPERATIVE DEGREE OF ANEMIA, BASED ON ONE HUNDRED AND FOURTEEN CASES

Hemoglobin	Number of Cases	Postoperative Results			Subsequently Died
		Deaths	Not Improved	Improved	
Below 20	9	7	1	1	
Below 30	29	6	2	21	3
Below 40	33	2	2	29	7
Above 40	43	7	7	29	5

Another factor to be considered is changes in the red blood cells themselves In one case that I had an opportunity to study (Stewart's), the resistance of the erythrocytes was distinctly increased after splenectomy, so that this might constitute one of the factors of improvement after operation A similar increase in the resistance of the erythrocytes has been found after the removal of the spleen in normal animals (Pearce and

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[6] Pearce, R M, and Pepper, O H P Jour Exper Med, 1914, xx, 19

[7] Krumbhaar, E B, and Musser, J H Jour Exper Med, 1914, xx, 105

Karsner[8]) and in other blood diseases, but has been denied in some cases of pernicious anemia (Moffitt)

Whatever the cause of the improvement, it is highly probable that the subsequent deterioration is due to other related structures taking over the functions of the spleen (hemolymph nodes, accessory spleens, Kupfer cells in the liver, and perhaps ordinary lymph nodes), although here also no positive evidence has as yet been produced Assuming that the cause of the disease has not been removed, the logical sequence would be that when these auxiliary organs have sufficiently developed, the interrupted course of the disease would be resumed

As to the few patients who up to the present time have continued well after operation, if the curative action of splenectomy is denied, one must assume either that the causative factor has for reasons unknown ceased to operate, or that the auxiliary organs have failed to develop into pernicious activity

INDICATIONS FOR SPLENECTOMY

In what cases of pernicious anemia, then, should splenectomy be undertaken? One of two lines may be followed, and it is as yet too early to say which, if either, is correct If splenectomy merely induces a remission, and this is at present the opinion of the majority of observers, it should be logical to undertake it only as a last resort, when all other measures have proved unavailing, and only with the hope of prolonging life Even under such limitations, however, the procedure has already proved its value, and in several cases moribund patients have been brought back to life of comparative well-being for many months Assuming, on the other hand, that an occasional patient may be, for practical purposes, cured of the disease, and giving due weight to the view that greater and longer continued improvement is obtained if the operation is performed before the disease has reached its final stage, it would then be advisable to undertake it as soon as possible Another factor that may prove to be decisive is whether or not increased hemolysis can be proved In those cases with clinically enlarged spleens, icteroid appearance and increased urobilin output, without increased resistance of the erythrocytes, the prognosis is distinctly more favorable than in the opposite types The condition of the bone marrow is also important, splenectomy being contraindicated if the bone marrow is persistently aplastic It has also been a matter of clinical observation that those individuals in whom spinal cord symptoms have already developed are less apt to be helped by the operation

TABLE 6.—RESULTS ACCORDING TO SIZE OF SPLEEN BASED ON EIGHTY NINE CASES

Size of Spleen	Number of Cases	Postoperative Results			Subsequently Died
		Deaths	Not Improved	Improved	
Normal or diminished	28	9	5	14	2
Slightly enlarged	41	5	4	32	9
Considerable enlarged	20	1	1	18	3

CONCLUSIONS

1 Of the 153 patients studied, 19 6 per cent died within six weeks, a distinct improvement in the clinical condition and in the blood picture occurred in 64 7 per cent, and no improvement in 15 7 per cent

2 The rather high postoperative mortality (practically 20 per cent) may be due to poor choice of cases in the early series As a much greater proportion of the more recent cases has survived the operation, the true postoperative mortality is probably much less than 20 per cent

3 Of the individuals who showed improvement shortly after operation, nearly two thirds of the total number, a large number have failed to maintain this improvement, or have since died in a relapse or from intercurrent disease

4 Although a few have continued in good condition during the period of observation (over two years), in no case can it be said that a cure has been effected, and the blood of these individuals continues to show many of the characteristic signs of pernicious anemia

5 On account of the improvement that follows splenectomy, it would appear to be not only a justifiable, but in many cases an advisable, procedure, but in no case should a cure be promised or the operation undertaken except under the most favorable conditions

6 The best results are obtained if the operation is preceded by one or more transfusions, and those patients who relapse after operation may still be greatly helped by transfusion Whether or not transfusions would have produced equally good results in the absence of splenectomy is a question that cannot at present be decided

7 The most favorable results may be expected in individuals who have not passed the fifth decade, in whom the disease has not progressed for more than a year, and who have a relatively good blood picture, (that is, an anemia that is not of too extreme a degree or of the steady, progressive type) Individuals with enlarged spleens have done better than those in whom the spleen was small or of normal size, as have also those suffering from an anemia characterized by excessive hemolysis

8 The opposite of these conditions should be considered as unfavorable factors, as should also the existence of spinal cord symptoms or the presence of an aplastic bone marrow

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SPLENECTOMY IN SPLENIC ANEMIA, HEMOLYTIC ICTERUS AND HANOT'S CIRRHOSIS *

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The value of splenectomy in splenic anemia remains unquestioned, and since the first report by Banti in 1894 sufficient time has now elapsed to enable us to draw definite conclusions regarding not only the immediate success, but also the permanency, of the results Within recent years two other conditions resembling in many clinical aspects splenic anemia have been relieved and probably permanently cured by splenectomy, namely, hemolytic icterus, both of the acquired and congenital type, and the hepatic cirrhosis of Hanot These three conditions, splenic anemia, hemolytic icterus and the cirrhosis of Hanot, have many things in common and no doubt in the past have been frequently confused

In all there is marked enlargement of the spleen, although the literature contains a few reports of apparently true hemolytic icterus without palpable splenic tumor In all three conditions there is chronic anemia or chronic icterus, or both Evidence of obstructive icterus is always lacking, and when jaundice is present the patients do not show certain toxic manifestations, as bradycardia and pruritus, so common in other forms of jaundice While typical hemolytic crises occur in only hemolytic icterus, sudden, unaccountable increase in the anemia is not infrequent in Banti's disease Hemolytic icterus often occurs in several members of a family and may be definitely hereditary While familial cases are much less frequent in splenic anemia, they nevertheless occur, in fact, the Gaucher's type of splenomegaly, which must be classed with splenic anemia, quite frequently takes this form, and Brill, Bovaird Collier and others have reported two or more cases of splenic anemia in the same family, and White reports 104 cases of splenomegaly with anemia from South China, where he states the condition is common and is often a family disease To show the close relation between these two conditions, Chauffard and Troisier report a case in which the mother of the patient had hemolytic icterus, the son had an enlarged spleen with anemia and no icterus, but with urobilin in the urine and lessened resistance of the red corpuscles The writer recently saw an apparently typical case of hemolytic icterus, but without enlarged spleen, the patient reporting that his sister had a large spleen, which had been removed, but she had never suffered from icterus

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[8] Pearce R M and Karsner H Jour Exper Med 1912 xvi 769

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Chronic jaundice is constantly present in hemolytic icterus and Hanot's cirrhosis, but it is infrequent in splenic anemia Osler reports its presence in only four of his twenty-six cases, and Griffin in two out of eighteen cases Great enlargement of the liver is constantly present in Hanot's cirrhosis, and a very decided enlargement of the liver is not infrequent in hemolytic icterus Osler, in sixteen cases of splenic anemia, reports moderate enlargement of the liver in six, and in one the liver was very decidedly enlarged

The chief point of difference in these three conditions is the lowered resistance of the red corpuscles in hemolytic icterus This finding, however, is not constant and its absence should not interfere with the diagnosis of hemolytic icterus in the presence of other evidence Normal resistance of the erythrocytes has been reported in two cases by Hopkins, two by Lommell, one by Claus and Kalberlak, all of these being of the familial type Morse reports two and Banti one of the acquired form Turk states that in splenic anemia the resistance of the red corpuscles may be increased or diminished, and Eppinger reports three cases, all with increased resistance In Hanot's cirrhosis, as in other forms of chronic icterus, the resistance of the red corpuscle is increased

In hemolytic icterus bile is usually present in the blood, but there is no urobilin, while in the urine bile is absent except during hemolytic crises, but urobilin is present This peculiar condition is not present in either of the other two diseases

Secondary anemia of greater or less degree is characteristic of splenic anemia and hemolytic icterus, but is not present in Hanot's cirrhosis

Urobilin in the stool, usually considered as an index of blood destruction, is greatly increased in hemolytic icterus Eppinger believes that the amount present in the normal stool is from 0 12 to 0 15 gm, while in three patients with hemolytic icterus the amount varied from 2 25 to 3 8 Eppinger and Robertson have each determined the urobilin in the stool in Hanot's cirrhosis and they find it varies little from the normal Eppinger has reported on two cases of Banti's disease, the amount of urobilin being 0 32 and 0 33 gm, respectively, a rather moderate increase above the normal and often reached in various conditions, as, for instance, in cardiac incompensation That blood hemolysis is not especially important in splenic anemia is further supported by the relatively small amounts of iron found in the liver, spleen and kidneys in this condition There is also no evidence that blood hemolysis is active in Hanot's cirrhosis, while in hemolytic icterus excessive blood destruction is very evident

In these three conditions, which are in many ways so closely related, it is at present impossible to explain why in Hanot's cirrhosis there is icterus without anemia, in splenic anemia there is anemia without icterus, and in hemolytic icterus there are both icterus and anemia, although in many instances icterus is the dominant condition

Splenic Anemia—The majority of modern writers question whether we have in splenic anemia a disease entity It is quite probable that in the past some patients with hemolytic icterus were diagnosed as having splenic anemia It is also quite likely that at present splenomegaly of varied etiologic origin is included in this group Banti's original definition included only those cases of anemia with enlarged spleen in which known etiologic causes could be excluded It is not improbable that a chronic splenic tumor from any cause, especially if this enlargement is associated with great increase in the endothelial cells, which have been shown to have a marked erythrolytic activity, might give rise to chronic anemia That in such cases splenectomy might be curative is also probable Gaucher's splenomegaly may be given as a type of splenic anemia Clinically, it conforms satisfactorily with our conception of splenic anemia The histologic condition of the spleen, however, places it in a distinct class Especially in children splenomegaly from syphilis with anemia may also be included, at least clinically, as splenic anemia Chiari and Marchand report evidence of syphilis in some patients with clinically diagnosed splenic anemia coming to necropsy Caronia applied the Wassermann test to the parents of thirty children with splenic anemia and reported it positive in nineteen Curshmann reports the case of a patient with a history of hereditary syphilis who clinically had splenic anemia, recovery occurring after salvarsan Mayo refers to three patients in whom syphilis may have been the cause

In somewhat the same manner the enlarged spleen in a case of cured malaria might take on an increased erythrocytic function and thus give clinically a splenic anemia Bey reports three cases, two corresponding to the first stage of Banti's and one to the third stage, that cleared up completely under quinin In all of these there was a definite history of malaria Thrombosis of the splenic or portal vein, with stenosis, may also give rise to clinical splenic anemia, as in the case reported by Warthin and Dock

The classification of all splenic tumors with chronic anemia under the general head of splenic anemia may not be logical, but from a therapeutic point of view such a grouping may be desirable, as there is indisputable evidence that cure has been effected in the vast majority of patients clinically diagnosed as having splenic anemia, on whom splenectomy was performed. Even when the disease had advanced to the point of marked hepatic cirrhosis and ascites, more or less complete return to normal has been reported.

The results of operative measures in the early stage of the disease are excellent. Griffin, from the Mayo Clinic, reports the cases of five patients, three with cirrhosis and ascites, and two in the preascitic stage of cirrhosis, on whom splenectomy was performed, and four of the five returned to normal health. One of these patients with ascites has been well seven years. In the Mayo series of eighteen patients, two died, or 11 per cent. Twelve of the sixteen recovering from the operation are now in excellent health (1915), two are definitely improved, one at first improved, later developed ascites and died, and one died two years after the operation, the cause of death not being determined. Some have advised against splenectomy during the ascitic stage, but the literature contains several reports, in addition to those already referred to, of the disappearance of ascites after splenectomy and the permanent cure of the patient. As operation is the only means that offers hopes of cure in this disease, it should be undertaken, provided the condition of the patient is not such as to make recovery from the operation improbable.

Regarding the mortality from splenectomy, the figures of Mayo have already been given, 11 per cent. in eighteen cases. This represents the lowest reported operative mortality in a relatively large series of cases. In the thirty-six cases reported by Banti, in which splenectomy was performed, the mortality was 44.4 per cent. Fifty-seven cases from various sources between 1900 and 1909 gave a mortality of 19 per cent., and in sixty-one cases reported since then the mortality was the same. This may probably be taken as the average mortality. In addition to the reported cures of splenic anemia by mercury and quinin, distinct benefit has been observed in a number of cases through the use of the Roentgen ray. There is no definite evidence, however, that any of these have been permanently cured.

Hemolytic Icterus.—Minkowski in 1900 was the first to describe this condition as a distinct disease. Appearing either as an acquired or familial condition, the first symptoms may develop either at birth or during early adult life. The characteristic symptoms, outside of its familial nature, are the chronic icterus of fluctuating intensity, combined as a rule with varying degrees of anemia, greatly enlarged spleen, often moderately enlarged liver, urobilin in the urine, but no bile except in some instances after a hemolytic crisis, the stools well colored, with no evidence of biliary intoxication, as pruritus and bradycardia, and the presence usually of a lowered resistance of the red corpuscles. The disturbed resistance of the erythrocyte, which has been considered so characteristic of this condition, is not always present. Banti, Claus, Morse, Lommell and Hopkins have reported cases of both the hereditary and acquired types with normal corpuscular resistance. Even absence of a splenic tumor has been observed by Banjamin and Sluker, Marchiafavas and Nazarios, and the writer has recently seen a case of this character.

As a rule the patient is little inconvenienced by his trouble, so that Turk has referred to it as a cosmetic disturbance, rather than a disease. Probably too much stress has been placed on the benign character of the trouble, as the majority of these patients suffer from anemia and consequent lowering of their efficiency. Especially following a hemolytic crises, the occurrence of which is so common in these cases, the degree of anemia may be so great as to temporarily incapacitate the individual. In a case recently observed the hemoglobin fell during a crisis from 85 to 40 per cent., the patient developed a temperature of 105 and for two days was delirious. It is true that the degree of inconvenience observed varies greatly, some are apparently not the least disturbed by their condition, others are always under par. Symptoms, when present, are due to the anemia, and not to the icterus. When considering the advisability of splenectomy, the degree of inconvenience caused by this trouble should be seriously considered, as the operation is attended with a certain amount of danger and should not be undertaken without definite indications.

The usual presence of lowered resistance of the erythrocytes and the relation of the spleen to this phenomenon stamp hemolytic icterus as having a probable etiologic relation to the spleen. The hemolytic function of the normal spleen was first described by Kolliker in 1847, and Balbi in 1893 reported that splenectomy increased the resistance of the red corpuscles. In 1895 Banti demonstrated that in dogs after splenectomy pyradin did not cause icterus. This work has been confirmed by a large number of observers — Pel, Paton and Goodall, Pearce, Heinz and others. It might be considered that as the normal spleen tends to lower the resistance of the erythrocyte to hemolytic agents, an enlarged or hyperfunctioning spleen might increase this tendency to such a degree that hemolysis would occur from a variety of mildly hemolytic agents normally present. It is possible in these cases, however, that the enlarged spleen may not be the cause of the disturbed resistance of the erythrocyte, as it is well established that this disturbed resistance is not always present. Furthermore, while as a rule the resistance of the corpuscles soon returns to normal after splenectomy, there are several cases on record in which this failed to take place. A notable case of this kind is seen in the patient operated on in 1887 by Sir Spencer Wells, in whom, as reported by Dawson, the red corpuscles still showed lessened resistance in 1914. Roth also reports a case in which three and one-half years after splenectomy the corpuscles hemolyzed in 0.6 per cent. salt solution. It is possible these patients may have developed accessory spleens. Kuttner reports a case in which necropsy, made eleven years after splenectomy for gunshot wound, revealed the presence in the peritoneal cavity of eighty to one hundred spleens. Significant, however, is the fact that in spite of the disturbed resistance of the erythrocyte these patients after the splenectomy have remained well, showing that the spleen is responsible in some way for the hemolysis, even if not concerned in the lowered resistance of the red corpuscles.

Splenectomy is undoubtedly curative. Although Micheli in 1911 was the first to perform splenectomy in recognized hemolytic icterus, several patients wrongly diagnosed as having splenic anemia had been previously splenectomized with permanent cure. In this list might be mentioned Banti's case in 1904, Umber's in 1904, Burghard and Sutherland's in 1906, and Roth's in 1908. Since Micheli's case the number of reported splenectomies has grown rapidly. Elliott and Kanavel in 1915 collected in the literature forty-eight cases. The operative mortality in these forty-eight cases was only 4.1 per cent., surprisingly low

The forty-six patients who recovered from the operation were cured The jaundice rapidly disappeared, beginning within a few days, and as a rule being complete within two weeks The recovery from the anemia was somewhat slower, but relatively rapid The hemolytic crises ceased, although Elliott and Kanavel report a crisis in their patient fifteen days after splenectomy As only five years have elapsed since Micheli's case, it might be said that time has been too short to insure permanency In the list of permanent cures, however, may be included those cases already referred to in which splenectomy was performed under a different diagnosis As none of these patients have relapsed, we are justified in saying the results are permanent

Parisot and Huelly in 1913 report two cases of hemolytic icterus cured by the Roentgen ray, the permanency of these results cannot be confirmed With our knowledge of this condition it is reasonable to believe that the Roentgen ray may be beneficial

Hanot's Cirrhosis—True Hanot's cirrhosis is a rare disease Like splenic anemia, mistaken diagnoses are probably frequent That it bears some resemblance to splenic anemia and hemolytic icterus must be admitted For this reason it is not surprising that a cure should follow splenectomy Eppinger in 1913 reported two patients cured and Mayo recently reported one As far as I have been able to determine, these are the only reported cases It would appear probable, however, that in Hanot's cirrhosis, a condition which has heretofore been considered incurable, splenectomy was indicated[1]

THE RESULTS OF TREATMENT IN ARTERIAL HYPERTENSION DUE TO OR ASSOCIATED WITH SYPHILIS *

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The exact status of syphilis as a factor in the production of arterial hypertension is not yet settled, despite the general acceptation in medical literature of the view that syphilitic infections are not important in an etiologic sense The prevailing view that this disease, so prone to attack the arterial wall, should be without effect on the blood pressure, is a teaching which cannot be considered as a closed chapter Comparatively little has been written on this particular phase of hypertension, although it is mentioned as a possible cause by most writers on the subject As early in 1901, Cautley[2] emphasized the absence of high blood pressure, as well as cardiac hypertrophy in syphilitic disease Allbutt is equally emphatic in his belief that there is no important relation between syphilis and arterial hypertension He says that he has seen high pressures in no case of syphilitic disease of the arteries unless there were renal or other complications This assertion cannot be construed to mean that the hypertension might not be due to syphilis, because the renal or other complication may itself have been due to that disease The mechanism which underlies the production of arterial hypertension is as yet so obscure that syphilis cannot be excluded until all the factors are known

In order to determine the results of treatment in cases of hypertension due to or associated with syphilis, the writer has collected a group of eighteen patients who have been under observation sufficiently long to draw certain conclusions The small group of patients which have been selected for this study are cases in which syphilis and hypertension are associated It has not been assumed that because a patient with increased blood pressure has had an antecedent history of syphilis, that the latter infection stands in the relation of a causal factor to the former condition In fact, it was not always possible to say that the syphilis preceded in point of time the increase in arterial pressure In no case, however, has the syphilitic infection been definitely known to have followed the arterial hypertension That is, no case is included in which a hypertensive patient is known to have been later infected with syphilis Inasmuch as syphilis is a disease of early adult life, and hypertension a disease of a later period, it is probable that where the two are associated, the syphilis usually preceded the increase in pressure

If syphilis cannot be said to be the causal factor in any of these eighteen patients, it cannot be said that any other infection, toxemia or condition can be so considered The present state of our knowledge of the etiology of hypertension does not admit of an etiologic diagnosis in the great majority of cases All the patients in this group had either a definite history of syphilis, a positive Wassermann, or sufficient evidence to be certain that syphilis existed No attempt was made to select particular types of hypertensive disease Some were cases of pure hypertension without demonstrable changes in the heart, kidneys or arteries. Others were associated with kidney or cerebral manifestations in various combinations The essential requirements of case selection were, then, a definite history or proof of syphilis, and a condition of arterial hypertension

The systolic pressure in each case selected was 170 mm or higher While it is doubtless true that a diastolic pressure of 100 mm or higher means hypertension, regardless of the height of the systolic reading, in this group of patients the systolic pressure was taken as the measure of selection Any group of patients so selected will show many types In some of the patients there was demonstrable nephritis. This was evidenced by the urinary findings, retinal lesions, cardiac hypertrophy, and accentuation of the second aortic sound In six of the patients, there was evident sclerosis of the radials and temporals Four patients out of the eighteen showed involvement of the aortic ring, aortitis, aortic insufficiency, or aortic dilatation In some of the patients there was a combination of kidney and arterial lesions Four of the patients had no organic trouble which could be demonstrated by urinary findings, heart findings or arterial changes This latter group would come under the heading of essential hypertension, or hyperpiesis The one thing which all these patients had in common was a definite history of syphilis or a positive Wassermann, with or without a definite history All of the patients were under observation for varying periods of time, in no case less than four months

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[1] Those interested in consulting the literature on this subject will find a very complete bibliography on both splenic anemia and hemolytic icterus in the following articles
Krumbhaar Analysis of Clinical Types of Splenomegaly Accompanied by Anemia, Am Jour Med Sc, 1915, cl, 227
Elliott and Kanavel Splenectomy for Hemolytic Icterus, Surg, Gynec and Obst, 1915, xxi, 21

* Read before the Section on Pharmacology and Therapeutics at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

[2] Cautley Lar [illegible] April 6, 1901

Each of the patients was subjected to antisyphilitic treatment although not invariably to intensive treatment Many of the patients had other conditions in a clinical way in addition to the hypertension, so that the latter alone was not always the direct cause or incentive to treatment

The mercury injections used consisted of a mixture of equal parts by weight of lanolin and metallic mercury, of which mixture an amount was used to equal 1 gram of metallic mercury As far as could be determined, the careful administration of mercury in these cases, in some for long periods, did not appear to damage the kidneys In several of the patients albumin was first noted after the mercury had been started, but it does not at all follow from this that the mercury was the causal factor

The association of arterial hypertension and syphilitic infections is of course a frequent one It is at once evident that the association does not imply any essential relationship An individual infected with syphilis may develop hypertension from the same causes and conditions which exist in nonsyphilitics The great incidence of hypertension and also the great incidence of syphilis would lead, from the laws of chance alone, to the frequent association of the two conditions in the same individual

It is not possible to give more than approximate figures concerning the frequency of syphilis in the community It has been shown that about 20 per cent of the patients admitted to the general hospitals in widely different parts of the country are infected with syphilis, as shown by a positive Wassermann Figures so obtained are too low because many syphilitics (approximately one fourth) do not give a positive Wassermann With such a large proportion of syphilitics in the community, it remains to consider what changes syphilis produces in the body which may be considered as possible factors in the production of hypertension

Until the exact mechanism of arterial hypertension is disclosed, it is not possible to analyze with accuracy the pathologic changes due to syphilis in their relation to increased blood pressure The conditions which have to be so analyzed are the question of arterial sclerosis, the irritability of the vasoconstrictor mechanism, toxic substances in the blood acting directly on the arterial wall, the all important renal element, and the cardiac factor

Allbutt seems to have excluded syphilis as a possible factor in the production of hypertension, because cases of syphilitic arteritis were not associated with increased blood pressure The anatomic changes produced by syphilis on the arterial wall have been well worked out The period of time which intervenes between a syphilitic infection and definite changes in the walls of the blood vessels is difficult to determine, but certainly very variable It may be well defined in two years, or delayed twenty or more years There seems to be no fixed relationship between the actual presence of the spirochete in the arterial wall and the production of arteriosclerosis

The condition of the smaller arteries plays an important part in the production of increased tension About one third of all cases of well marked peripheral arteriosclerosis have normal or subnormal pressures In the remaining two thirds the pressure is invariably increased, the exact degree depending on such other conditions as the kidney involvement, and the other factors mentioned above The view that peripheral arteriosclerosis and cardiac hypertrophy are secondary to the hypertension has its supporters

The relationship between syphilis and hypertension is bound up intimately with the question of the effect or changes produced in the kidney by syphilitic infections The relationship between the kidney and hypertension is apparently a very close one, but by no means constant Syphilis is not now considered as a common factor in the production of chronic nephritis, with or without hypertension However, increasing numbers of cases are being reported where nephritis is definitely due to syphilis as shown by prompt improvement in all the manifestations after antisyphilitic treatment

There is no definite way of saying whether abnormal urinary findings in a syphilitic are to be interpreted as evidences of kidney syphilis, or simply as an associated kidney lesion which happens to be present The fact that such urinary findings in a syphilitic do not again become normal on syphilitic treatment is no reason why the lesion may not be due to syphilis A kidney cell damaged by syphilis may be damaged as permanently as a spinal cord cell in tabes The fact that such a spinal cord cell in tabes does not again functionate after treatment is not considered reason enough to doubt the nature of the disease process A kidney cell damaged by syphilis may remain so in spite of all treatment

In this series of cases, the urine was examined in all cases Albumin or casts, or both, were found eleven times out of the eighteen Detailed and systematic examinations of the urine will show casts or albumin in most cases of hypertension The usual interpretation of such findings in hypertension is that it means the presence of nephritis Necropsy might show an arteriosclerotic kidney or the so-called primary contracted kidney On the other hand, there are cases of high blood pressure recorded where the necropsy showed normal anatomic findings, or only secondary congestion due to a failing heart

The heart is the most important factor in the maintenance of normal blood pressure, because it is the chief source of energy necessary to keep up the circulation For this reason, any abnormality of the heart may have some bearing on the question of hypertension The heart is involved very often in syphilis, much more so in a pathologic sense than in a clinical sense The cardiac involvement may be either congenital or acquired The congenital type may be latent for an indefinite number of years and become active without apparent cause at any time The spirochete may remain in the heart muscle and tissues for years or decades without the appearance of clinical manifestations Such manifestations may, in fact, never appear The spirochete has a special predilection for the heart muscle and aorta, and its presence in those tissues has been repeatedly demonstrated by Warthin, Benda, Reuta, Schmorl, Wright and Richardson, Longcope and others Grassmann[3] found that two thirds of a series of 228 syphilitics had cardiac disturbances, such as arrhythmias, bradycardias, tachycardias, murmurs and dilatation

The cardiovascular conditions produced by syphilis are very varied and include such conditions as myocarditis, aortic insufficiency, angina pectoris, aortitis and aneurysm Such lesions are, of course, to be recognized by the clinical signs peculiar to each, but there is no typical cardiac symptom-complex due to syphilis

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[3] Grassmann Deutsch Arch f klin Med 1901, lxix 281

It is said that a cardiac first heart sound "without tone" has some value in suggesting a cardiac syphilis in a patient otherwise suspicious This is too vague to be of value Certainly the error in diagnosis must be very great if reliance is placed on the clinical history alone Cardiac pain is suggestive of cardial syphilis Stoll[3] ascribes these substernal pains to the almost invariable presence of syphilitic aortitis and periaortitis, to the fact that the aorta at its root is surrounded by rich ganglionic and nerve plexuses, and to the varying degree of aortic dilatability and pressure The Wassermann may show whether the patient has syphilis, but not whether the particular lesion under consideration is syphilitic

The possibility that there may be some chemical change in the blood in syphilis which has to do with vascular tone and hypertension is an interesting speculative question, but the writer knows of no work on this subject In the same way, it has not been shown that the viscosity of the blood is increased in syphilis, thus increasing the resistance to its flow through the vessels, and consequently elevating the blood pressure

Stoll believes that syphilis is a greater factor in the production of hypertensive arterial disease than is usually thought Syphilis, in his estimation, is not to be considered to mean acquired cases only, but also those living in intimate relations with syphilitics, the congenital types, which are often unrecognized, and also those whose children exhibit the manifestations of hereditary syphilis Stoll goes so far as to call hypertensive disease one of the most common of the so-called late manifestations of syphilis

The effect of antisyphilitic treatment in cases of arterial hypertension is not easy to judge In this series antisyphilitic treatment was associated in practically all cases with whatever else that was possible in the way of regulation of the diet, living habits, and the administration of vasodilators Stoll says that "specific treatment has given very satisfactory results in a few cases of hypertension, for the most part individuals whose systolic pressures were over 200" There were three cases only in which a definite result may be said to have taken place following syphilitic treatment Certainly these cases were striking, and do not appear to have been in the nature of coincidental results All three of these cases had their positive Wassermanns turned negative In all there were thirteen out of the eighteen patients who had positive Wassermanns at the start, and all but three of these changed to negative as a result of treatment It is difficult to analyze the factors which go to make up a clinical improvement or change All these patients had been advised to rest, the intestinal elimination was cared for, diet and living controlled, but these factors cannot be absolutely excluded in the analysis of the final result It is not maintained that the drop in the blood pressures of these three cases was due to the syphilitic treatment alone, but that is the impression of the writer

Salvarsan was administered in fourteen out of the eighteen patients one or more times It is entirely unlikely that the fleeting effect of salvarsan on blood pressure could have entered in the question, because only more or less permanent ranges of blood pressure have been considered Rolleston[5] has studied the effect of salvarsan on the blood pressure It is very doubtful if syphilis is a factor in the results recorded by him Rolleston says that the average of both systolic and diastolic pressures on the days after injection is generally lower than before The fall of systolic pressure is slightly more marked than that of the diastolic pressure The blood pressure seven hours after the injection of salvarsan is usually lower than it was before During the actual intravenous injection of salvarsan, both the systolic and diastolic pressures are nearly always higher than on other occasions This appears to be due to excitement The general effect of intravenous injections of salvarsan is rather to lower, certainly not to increase arterial blood pressure Rolleston kept his patients in bed after the injection, and this may have had some slight effect on his findings

The clinical effects following the administration of vasodilators in this group of patients did not appear to be unusual

REPORT OF CASES

A brief summary of the case histories of this group are here given The first three histories are those in which a definite result seemed to follow treatment

Case 1—Lumber dealer, aged 57, weight 240 pounds. Syphilis at about 25 years of age Treated two years at that time No treatment since For five years has had attacks of dizziness, headaches, and sometimes vomiting. Would become almost unconscious during severe attacks Blood pressure ranged around 180 systolic and 100 diastolic. These attacks resisted all kinds of treatment from many hands A Wassermann was made and found positive Patient then admitted his old syphilis Urine contains albumin and casts at almost every visit Has had six injections of salvarsan and deep injections of mercury After two months of such treatment, blood pressure fell to 135-140 systolic, and 95 diastolic Has stayed at this lower point for five months now Dizzy attacks disappeared, but still has some headaches, although much less severe Considers himself remarkably improved Wassermann negative five months after beginning of treatment Albumin still present

Case 2—Railroad worker, aged 39 Distinct history of syphilis twelve years ago Mercury by mouth and rubs at that time Has a well defined systolic blow at the aortic area, and also a weaker diastolic murmur at the same place. Left heart border pushed to the left Pulse approaches Corrigan type Initial blood pressure, systolic 200, diastolic 105 Negative urine Was given mercury injections for over one year Wassermann originally positive and has remained so Blood pressure has fallen to 155 systolic and 80 diastolic Physical heart findings are the same. The peripheral arteries have been moderately sclerosed throughout

Case 3—Man, aged 47 Treated for syphilis twenty years ago Wassermann positive Blood pressure 220-126 Has signs of an old syphilis. Was given three injections of salvarsan and has rubbed mercury for six months Albumin and casts are present Pressure has fallen to range around 170-106 Urine still shows albumin and casts Wassermann changed to negative His original complaint of difficult breathing is better

Case 4—Man, cigar maker, aged 51 Admits an old syphilis Blood pressure at beginning of observation 184 92 Seven months later 190-90 Wassermann at beginning four plus, but changed to two plus in seven months Came for headaches No definite lesions found Urine normal Was treated with mercury by mouth before coming under observation Has had three injections of salvarsan and mercury injections since

Case 5—Foreman, structural steel worker, man, aged 46. Had a venereal lesion at 22, but no manifestations since Wassermann positive when first seen First blood pressure reading 224-125 Condition was found in the course of a routine examination for an acute bronchitis No symptoms due to his hypertension Was treated at the time of his first trouble, but not well Was given salvarsan and mercury after coming under observation Urine negative After

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[4] Stoll Am Jour Med Sc, August, 1915
[5] Rolleston British [illegible] Jour Aug 21, 1915

nearly one year's treatment, blood pressure is still high, 210-122 Wassermann has become negative

Case 6—Man, aged 55 Denied syphilis, but Wassermann was strongly positive Came on account of pain in back, for which no definite cause was found Blood pressure, 210-130 Urine negative Examination did not reveal any demonstrable organic disease Was given mercury injections and Wassermann became negative Blood pressure did not fall and remained around 206-130

Case 7—Man, aged 52, railway conductor Indefinite history of venereal lesions Treated with tablets sporadically for several years Wassermann positive Initial blood pressure, systolic 174, diastolic 90 No evidence of organic disease Urine negative Treated with salvarsan and mercury for eight months Wassermann became negative but blood pressure range did not materially change

Case 8—Man, aged 56 merchant Admits gonorrheal discharge in the twenties, but denied chancre Took medicine by mouth for venereal disease but does not know that it was for syphilis Wassermann negative Has distinct evidences of aortitis and disease at the aortic ring *Blood pressure, 196-90 Suffers from pains in left front chest* Has sugar in urine at times Has had one injection of salvarsan and rubbed mercury for over one year The range of the blood pressure has never been below 190 systolic and 85 diastolic The chest pains are relieved entirely by theobromin sodium salicylate, and recur when it is stopped Albumin and casts are present at times

Case 9—Man, aged 36, distinct history of syphilis Treated at various times during the last ten years Temporal arteries tortuous Aortitis Blood pressure, 210-114 Has pains over the heart No pains down left arm, but probably a true angina Wassermann negative Began mercury again and also was given three injections of salvarsan Blood pressure has not dropped at any time below 200 systolic Has casts in the urine.

Case 10—Man, aged 45 Well treated for syphilis about fifteen years ago Wassermann positive Has albumin and casts at times Some dyspnea on exertion Systolic murmur at aortic area Radial arteries hard Dizzy attacks sometimes Has had four injections of neosalvarsan but no mercury Has been on a careful regimen and restricted diet Blood pressure, 218-120 No improvement in the pressure, but the condition has not become appreciably worse in five months

Case 11—Man aged 48 Syphilis at 26, supposedly cured Wassermann positive and remained so Blood pressure very high Systolic 240, diastolic 170 Large amount of albumin and casts Retinitis Vision poor Mercury guardedly on account of condition No improvement in condition or blood pressure Death from coma

Case 12—Woman, aged 36 Obese 185 albumin and casts Shortness of breath, feeling of suffocation, headaches, and slight swelling of ankles Wassermann positive Husband known to have syphilis Blood pressure, 210-105 Had three salvarsan injections and mercury by mouth account family reasons Blood pressure after about one year's treatment systolic 200 diastolic 110 Wassermann still positive Albumin variable Casts always to be found on careful search

Case 13—Woman, wife of Patient 1 Intense headaches Wassermann positive Arteries hard at wrist and tortuous at temples Blood pressure 194-108 Patient very nervous Treated intensively with four injections of salvarsan and mercury for five months Blood pressure then 185-105 Headaches better but not gone Wassermann now weakly positive Has had albumin found after being under treatment, which was not noted before

Case 14—Man, farmer, aged 52 Had syphilis about thirty years ago Treated intermittently during the two or three years following his infection Arteries hard and visible Large numbers of casts in the urine, and albumin at times Second aortic sound accentuated Left heart hypertrophied Wassermann was not made when first seen Has taken potassium iodid and mercuric chlorid to tolerance for nine months Pupils are fixed, but no ataxia Blood pressure at first 200 110 Lowest point reached was 190-110 Wassermann later found to be negative

Case 15—Salesman, aged 50 Treated locally for venereal lesions at age of 31 Thinks that he had some medicine by mouth at that time but is uncertain Has digestive trouble and a strongly positive *Wassermann Blood pressure 206-116* Albumin and casts at times Was put on mercury injections, but these were discontinued in four months when the patient left the city Last pressure observation was systolic *210 Diastolic not recorded*

Case *16—Woman,* aged 36 No history of syphilis, but father died in insane asylum, supposedly of paresis Patient had attacks of vomiting without pain, suggestive of tabetic crises Pupils reacted, but patellar reflex was absent Blood Wassermann negative, spinal fluid Wassermann positive Blood pressure 180-96 Treated with mercury injections One injection of salvarsan The attacks of vomiting stopped Spinal fluid not again examined Blood pressure after one year 192-100

Case 17—Man, merchant, aged 41 Had syphilis at 22 Treated at that time Later developed a low grade of fever and pain over the liver region Wassermann positive Blood pressure *196-90 Was treated with salvarsan and mercury* injections for a period of over one year, and has been under observation for a longer period Urine has had an occasional trace of albumin Blood pressure has not appreciably changed under treatment Abdominal pain and fever cleared up promptly under treatment

Case 18—Man, aged 57 Had a thorough course of rubs for syphilis twenty-five years ago Later developed skin lesions leaving scars on forearm Has gastric disturbance, *probably not directly related to his syphilis* Blood pressure 224-118 Wassermann positive Treated with salvarsan and mercury injections After four months, the pressure was 220-120 The Wassermann became negative

COMMENT

It is seen from this small group of cases that a reduction in the blood pressure is not to be expected in syphilitics from antisyphilitic treatment The writer feels, however, that when syphilis can be demonstrated in a patient with hypertensive cardiovascular disease, it should be treated Such a procedure may in exceptional cases give very striking results It may be emphasized again that there is nothing in such absence of therapeutic result to militate against the belief that syphilis is a more common cause of arterial hypertension than is usually recognized

CONCLUSIONS

1 Antisyphilitic treatment is not to be expected to reduce high blood pressure in syphilitics who have also arterial hypertension

2 Occasional reductions in the blood pressure in such cases do, however, take place

3 The association of arterial hypertension with syphilis does not contraindicate the treatment of the latter

4 The careful use of mercury and salvarsan has not had bad results on kidneys damaged by arterial disease

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Human Progress—Our limited minds are confined in a limited world, with immeasurable space on all sides of us Our brief days are as nothing compared with the inconceivable aeons of the past, and the prospect of illimitable ages to come Both infinity and eternity are beyond our mental grasp We know that we cannot hope to understand all the wonders of the universe, but, nevertheless, we may be full of hope for the future Step by step we gain in knowledge, *and with each step* we acquire better opportunity for improving the lot of mankind and for illuminating the dark places in our philosophy of nature—T W Richards, Ideals of Chemical Investigation

THE INTENSIVE TREATMENT OF SYPHILIS *

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The day of pills and drops in the treatment of syphilis has passed The needle has taken their place, and injections, intramuscular and intravenous, are the order of the day

Since the discovery of the *Spirochaeta pallida*, the goal in the treatment of syphilis has been the abolition of these organisms from the body as quickly as possible, and we now believe that whether or not this has been accomplished is best determined by a constantly negative Wassermann

Two potent remedies in the treatment of this disease exist, mercury and the newer arsenicals, salvarsan and its allies To these may be added iodin in some form

The modus operandi of these drugs is, however, a moot point

By the administration literally of millions of doses of salvarsan, all doubt as to its immediate effect on the lesions of syphilis, as well as on the Wassermann reaction, has vanished Ehrlich[1] stated that while it was thought by some that the action of salvarsan is that of a stimulant to the formation of antibodies which in turn attack the spirochetes, such is not the case, but that salvarsan acts directly on the organisms through the agency of the so-called chemoreceptors

This is probably true in the cases of mercury also This drug in some form or other has been used in the treatment of syphilis, at least since the days of Fracastorius, and according to Buret,[2] by the Chinese 2,000 years ago And long before the discovery of the *Spirochaeta pallida* it was thought that the beneficial effects of mercury were due to the parasiticidal effects of the drug on the hypothetic causative organism Since Schaudinn's discovery, it has been shown[3] that the spirochetes of experimental syphilis in rabbits are killed by intravenous injections of mercuric chlorid, although the rabbits subsequently die of nephritis

There is, however, abundant clinical evidence which shows that the lesions of syphilis are healed by the use of mercury, although considerable doubt concerning its efficacy, especially the salicylate, has recently developed following the publication of Nelson and Anderson's[4] paper on the effect on the Wassermann reaction of intramuscular injections of this preparation These investigators showed in a series of fifty cases that the Wassermann was apparently uninfluenced by the intramuscular injection of the salicylate in sufficient quantity to keep the patient completely saturated with the drug

The writer has been able to show that this does not apply, at least in all cases, to some of the soluble preparations of mercury, especially mercuric chlorid intravenously and mercuric benzoate intramuscularly As I shall point out later, all my private patients are treated with both mercury and salvarsan, but as most of my clinic patients are unable to pay for the more expensive arsenical, they have received mercury alone However, owing to the fact that the majority of such patients are not permanent residents in Hot Springs, but are here today and gone tomorrow, it is difficult to follow the cases for a sufficient length of time to draw definite conclusions However, I have been able to follow a few cases long enough to reduce a four plus Wassermann to a negative which remained negative for periods ranging from one to six weeks with intramuscular injections of mercuric benzoate or intravenous injections of mercuric chlorid When my series becomes sufficiently large it will be the subject of a future report

In regard to iodin it is probably not a true spirocheticide, as Nichols[3] has shown that potassium iodid has little or no effect on the organisms of experimental syphilis in rabbits There is, however, abundant clinical evidence to show that this drug does have a most beneficial effect on gummas, causing their absorption, as well as on syphilitic arteritis It has been suggested that this action is due to the formation of a proteolytic ferment which has a selective action for the round cells of the gummas and the cellular exudate of the arteritis

With the above cited evidence as to the efficacy of the three syphilitic remedies, the logical method of treating this disease is to administer mercury and salvarsan as intensively as the patient can tolerate in all cases, and iodin in some form where indicated This treatment should be started as quickly as possible after a diagnosis of syphilis has been made

The diagnosis of syphilitic chancre when other lesions are absent should never be made on clinical evidence alone The finding of spirochetes in a suspicious lesion will of course clear up the diagnosis If these organisms are not found, a Wassermann test should be made which, if positive, will be proof that the individual is syphilitic, although not necessarily proving the lesion a chancre If the Wassermann is negative at this time a further search for spirochetes should be made and Wassermann tests performed at intervals of two or three days until positive evidence is obtained or until a sufficient length of time has elapsed to warrant a negative diagnosis to be made

It is not within the scope of this paper to discuss the diagnosis of syphilis at other stages of the disease, but I do want to emphasize the importance of frequent Wassermann tests as a guide to treatment in all cases As soon as a diagnosis of syphilis has been made, salvarsan should be administered by intravenous injection

The urine of all patients should first be examined carefully for the presence of albumin and casts, and a phenolsulphonephthalein test performed to determine the functional capacity of the kidneys When evidence of renal abnormalities is found, salvarsan should be administered with extreme caution In cases with normal kidneys the average dose is 0 4 gm, although in small individuals the dose is less It is given in fairly concentrated solution, that is, 10 c c for each 0 1 gm of the drug By this method two, three or four doses may be prepared at one time and administered in quick succession

The water used is freshly distilled into sterile flasks and autoclaved with the apparatus The patient is instructed to eat a light meal on the evening previous to administration, to take a *mild purgative* and to eat no breakfast The injections are made in the office, as a rule, and the patient cautioned to remain quietly in his room until the following morning and to eat only very sparingly

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* Read before the Section on Pharmacology and Therapeutics at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

[1] Ehrlich, Paul Lancet, London, 1913, clxxxv, 445

[2] Buret Syphilis in Ancient and Prehistoric Times, American Edition, Philadelphia, 1891, p 61

[3] Nichols, H J Further Observations on Certain Features of Experimental Syphilis and Yaws in the Rabbit, Jour Exper Med, 1911, xiv, 196

[4] Nelson, Kent, and Anderson E A The Use of Mercury Salicylate in Syphilis, The Journal A M A, Nov 27, 1915, p 1905

Some writers have advocated a short course of mercurial treatment before the injection of salvarsan in cases of florid syphilis This I think is a mistake, as I have found that even in these cases when the dosage is small very little reaction follows its administration

The day following the first dose of salvarsan, mercurial injections are begun For intramuscular injection I have found mercuric benzoate the best preparation This salt is insoluble in water, but is soluble in sodium chlorid solution The preparation I use is made as follows Two and five-tenths gm of chemically pure sodium chlorid are weighed out and placed in a 100 c c graduate flask About 50 c c of distilled water are added and the salt dissolved Two gm of mercuric benzoate are now carefully weighed out and placed in the flask where it readily dissolves on vigorous shaking The flask is now filled to the 100 c c mark with distilled water, and the solution filtered through paper It will be seen that each cubic centimeter contains 0 02 gm (⅓ grain) of the benzoate The initial dose is 0 5 c c, containing 0 01 gm (⅙ grain), which is rapidly increased to 1 c c if no untoward symptoms result The injections are made deep into the muscles of the gluteal region, and as a rule cause little or no pain

There are certain patients, however, in which the pain is so great that it seems desirable to discontinue the intramuscular injections In these cases intravenous injections are used Formerly I employed the mercurialized serum which I have described,[5] later used a mercurialized serum prepared in a similar manner from ascitic or hydrocele fluid, but recently have employed the method described by Nixon [6] However, instead of injecting the mercury simply dissolved in water as advocated by Nixon, the following method is employed A 2 per cent solution of mercuric chlorid is prepared When an injection is to be made, a 20 c c Luer syringe is filled to the 10 c c mark with sterile normal salt solution and the plunger removed The dose of mercury is then measured with a graduated pipet and dropped into the barrel of the syringe The plunger is replaced, the solution thoroughly mixed, and the air expelled The needle is then inserted into a prominent vein at the elbow, and traction made on the plunger until 10 c c of blood have been withdrawn and mixed with the mercury solution, when the entire quantity of blood and mercury is reinjected This method has proved very satisfactory in my hands, and in over fifty injections no phlebitis has resulted

In those cases in which gummas or arteritis are present, potassium iodid is administered by mouth in rapidly increasing doses

It is the opinion of the writer that all cases of syphilis of the central nervous system should have intraspinal medication While it is true that in some cases of involvement of the central nervous system the patients do get well by other methods of treatment, there is no doubt that the improvement is greater and quicker when the intraspinal route is employed

For intraspinal injection of salvarsan I employ a method which is a combination of the one described by Ogilvie[7] and the one described by Wile,[8] which is as follows Ten c c of blood are withdrawn by venipuncture and centrifugalized at once One c c of the clear serum is removed and placed in a sterile test tube

The salvarsan is then prepared by dissolving in water, neutralizing and diluting so that each 0 1 gm is diluted to 40 c c The dose required, usually 0 1 c c (0 25 mg) is added to the serum and placed in a hemostat at 37 5 C for forty-five minutes It is then removed and placed in a water bath at 55 C for thirty minutes

The intraspinal injection should be made as soon as possible after the serum is prepared With the patient lying on his right side near the edge of the bed or on an operating table, lumbar puncture is performed The site of the puncture is painted with iodin and the skin infiltrated with a small quantity of sterile 5 per cent novocain When it is determined that the point of the needle is well within the subarachnoid space, the barrel of a 20 c c Luer syringe is attached to the needle by means of about 25 cm of rubber tubing The syringe is now lowered below the level of the needle and the spinal fluid allowed to run into it When about 15 c c have been collected, 1 to 2 c c of a 5 per cent solution of novocain are added and thoroughly mixed with the fluid, which is then allowed to run back into the spinal canal by raising the syringe above the level of the needle

After three minutes the fluid is again allowed to flow into the syringe, and the salvarsanized serum added, and injected in the same manner as described above

Mercurialized serum for intraspinal injection is prepared by adding 1 c c of the 2 per cent benzoate solution used for intramuscular injection to 2 c c of serum and placing in the water bath for thirty minutes at 55 C It will be seen that the 3 c c of mercurialized serum contains 0 02 gm (⅓ grain of mercury) and that 0 03 c c contains 2 mg (1/30 grain) The latter is the usual dose and is injected in the same manner as the salvarsanized serum

By using the novocain as described for both the salvarsanized serum and the mercurialized serum, the pains in the legs and back which so frequently follow these injections are eliminated to a great extent

Aside from the specific medication it is of the utmost importance in the treatment of all cases of syphilis to look after the hygiene of the patient The writer is of the opinion that hospitalization is very desirable for all cases of syphilis and almost essential for some cases, such as syphilis of the heart and syphilis of the central nervous system At least the life of the syphilitic should be very regular, regular sleep, regular meals, a certain amount of regular exercise, depending on the case, should be insisted on The use of alcohol should be totally interdicted, and tobacco should be reduced to a minimum The syphilitic should be warned against sexual excesses, and of course while he is infective should not be allowed to indulge his sexual appetite under any circumstances

A great deal has been written and said concerning the wonderful cures of syphilis which have been affected at the great watering places of the world, Aix-la-Chapelle in Europe and the Hot Springs of

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[5] Thompson Loyd The Intravenous Injection of Mercurialized Serum in Syphilis The Journal A M A May 1 1915 p 1471

[6] Nixon P I The Intravenous Use of Mercuric Chlorid The Journal A M A May 20 1916 p 1622

[7] Ogilvie Hanson S The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength The Journal A M A Nov 28 1914 p 1936

[8] Wile Udo J Jour Lab and Clin Med 1915 i 119

Arkansas in this country That the waters of these springs possess any specific value in the treatment of syphilis I do not believe The benefits to be derived from a sojourn at these resorts are to be found in the pleasant surroundings, the outdoor exercise, the regularity of the treatment and the fact that the patient "makes a business of getting well" It is, however, a fact that most patients bathing daily in the waters of these springs can tolerate more mercury without untoward effects than those not bathing

THE CURE OF SYPHILIS

When shall we discharge the syphilitic as cured? Certainly not as I saw one physician do with a patient whose body was almost entirely covered with a lenticular papular eruption, which, however, had faded somewhat during the course of six or eight injections of salvarsan This patient was told that the organisms were all killed and that his eruption would soon entirely disappear — this also in the face of a constantly positive Wassermann

The length of time over which treatment should be given naturally varies with the case The first requisite, is, of course, a clinical cure If a patient is seen when the chancre is the only evidence of the disease and the Wassermann is negative, the length of time for treatment must be more or less empiric Probably, however, six to eight doses of salvarsan at weekly intervals with daily administrations of mercury either by intramuscular or intravenous injection pushed to the physiologic limit will in the vast majority of cases result in a cure

In later cases in which the Wassermann is positive when treatment is begun, a constantly negative Wassermann must be obtained as well as a clinical cure The Wassermann test is made at the time of each salvarsan injection, but in spite of a negative test occurring soon after beginning treatment, it is best to give most patients a "course" of eight or ten weekly injections of salvarsan with the mercury treatment, and of course potassium iodid if indicated If the Wassermann remains positive, a rest of from four to six weeks should be taken, when the course should be repeated

In syphilis of the central nervous system, intraspinal injections should be made at intervals of seven to ten days, and it is my custom to alternate salvarsanized serum with mercurialized serum At the same time intravenous injections of salvarsan and either intravenous or intramuscular injections of mercury are given as in any other case of syphilis If gummas exist or are suspected, potassium iodid in rapidly increasing doses is of value

This treatment is continued until eight or ten intraspinal injections have been made If the spinal fluid is still positive, the course should be repeated after six to eight weeks' rest

In the so-called Wassermann-fast cases, that is, those cases in which the Wassermann remains positive in spite of three or four such courses as outlined above and in which there are no clinical evidences of the disease, it is well to give a course of three or four injections of salvarsan and the amount of mercury that can be administered during the period at least once a year

SUMMARY

The writer is of the opinion that a patient should not be discharged as cured until the following conditions have been fulfilled

1 A clinical cure

2 A constantly negative Wassermann on the blood at frequent intervals for a period of two years following the last treatment

3 A negative spinal fluid at periods of one and two years following the last treatment

In cases which have shown involvement of the central nervous system and have been treated for such involvement, the spinal fluid should be examined and found negative at more frequent intervals The Wassermann on the spinal fluid should be performed with large quantities, up to 2 c c Of course in tabes and in certain other cases of syphilis of the central nervous system where there has been destruction of tissue, it is impossible to restore that which has been destroyed, and certain symptoms such as ataxia, etc, may persist, even though the process be checked In such cases we must rely on laboratory evidence for a standard of cure

Dugan-Stuart Building

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS LEVISON AND THOMPSON

Dr W W Tompkins, Charleston, W Va I would like to ask Dr Thompson one question and that is in regard to life insurance A man presents himself having had an incubative period and being in the stage of the sore or chancre A Wassermann proves negative, another taken in a short time proves negative, and still another after several weeks proves negative The man goes on with his hygienic treatment and cleanliness In answering to the life insurance examiner—had he syphilis or not? what shall he say? If a man has a chancre and there was an incubation period do you act on the incubative period and the character of the sore or do you act on the Wassermann result? In the treatment of syphilis either with your way or the iodids and mercury do you call these cases cured altogether or have they gone out only to return again?

Dr Noble P Barnes, Washington, D C We all realize we can get over the first stage and skip the second and reach the third Wassermanns are not easily made and should be made carefully When a patient comes to me and asks how long it will take for treatment I usually tell him the remainder of his life After you have had treatment for three, six or nine months, depending on the individual and the case, you have a Wassermann made, and after another six months and then one about every two years for the remainder of your life to be safe It is very important to tell these patients that they should be under observation for a long time We used to think we cured syphilis but after blood tests were made we soon found out that very few cases, if any, were cured I would like to have Dr Thompson give us his opinion as to the value of salvarsan, neosalvarsan and sodium cacodylate In the absence of some of these preparations I have been compelled to use the latter though I understand that experimentally it does not seem to have the properties of destroying the organisms, nevertheless I have seen secondary lesions clear up in ten days' time, clinically and symptomatically I begin with three grains, the second day five, and so on every other day up to twenty and twenty-four grains of sodium cacodylate a day

Mr F I Lachenbach, San Francisco The treatment of syphilis is coming to be an exact science There appears little divergence of opinion in the use of the arsenicals It is quite well established that salvarsan is probably the best therapeutic agent, neosalvarsan comes next, and then the cacodylates In the use of the mercurials there is more variation of opinion The benzoate has been little used in our locality Bichlorid of mercury has been used quite extensively but the preparation of choice is probably gray oil which is a very fine suspension of mercury in oil This preparation occurs in a concentration of 40 per cent in which six grains of mercury are represented in one cubic centimeter of suspension, 0 25 c c would contain about 1½ grains of mercury as metal The dosage is from one to three grains, given intramuscularly about once a week This is perhaps the most intensive mercurial treatment The salicylate seems to have been discarded since some adverse reports have been made but is this not still a valuable preparation?

Dr A G Shortle, Albuquerque, N M I have noted how many obscure cases diagnosed as tuberculosis, and which fail to respond to the ordinary methods of treatment, show a positive Wassermann reaction We finally took fifty cases that did not give a history of syphilis and made Wassermanns We got seven positives, so that it has become a routine procedure We make Wassermanns of all the cases admitted and are finding 10 to 15 per cent of positive cases of those not giving a history of syphilis

Dr G R Satterlee, New York In regard to Dr Levison's remarks on blood pressure, it seems to me that the good effects he got in the lowering of the blood pressure in the cases of syphilis were due largely to the hygienic regimen that goes along with the treatment of syphilis In connection with this I wish to cite a most interesting case—one of double aneurysm of the transverse arch and descending branch of the thoracic aorta The patient had no knowledge of syphilis or even what he had He was treated for pulmonary tuberculosis by seventeen different men and was sent away to different health resorts The question of treatment came in when we made a diagnosis of aneurysm and considered giving mercury first, with the idea of fixing the spirochete before administering salvarsan I started with salvarsan—and that was the time when they said that aneurysm was a contraindication to this treatment The most remarkable occurrence happened in thirty-six hours—the man spoke having previously lost the voice and the blood rushed back into the left radial artery, the pulse of which had been obliterated before treatment The principal treatment was mercury and iodid and he has been able to go back to work in spite of this aneurysm At first he had a blood pressure of 170, it is now 150 He has had 110 injections of mercury and ninety grains of potassium iodid a day, for a period of four to five years with intermissions I would like to ask Dr Thompson the value of potassium iodid in the treatment of these cases and the value of luetin in diagnosis He spoke about giving salvarsan in cardiac and aortic cases Our experience has been that with a very bad heart and aorta and syphilitic aortitis and myocarditis, in which we have given salvarsan the patients improve for three or four weeks and then suddenly die with a dilated heart, etc

Dr Louis A Levison, Toledo, Ohio In spite of the fact that the treatment of cases in which arterial hypertension and syphilis are associated has been followed by poor results, I believe that if syphilis can be demonstrated it should be treated It does not at all follow that because the results of treatment are poor, syphilis may not be the cause of the trouble It is true also in tabes and paresis that treatment may not be followed by good results, which fact does not lead to any question in regard to the nature of the trouble

Dr Loyd Thompson Hot Springs, Ark In regard to the question of diagnosis in life insurance and the chancre I do not believe we are justified in making a diagnosis of syphilis when the chancre is the only lesion present and without laboratory evidence because so many lesions that are not syphilitic resemble the syphilitic chancre In the vast majority of cases of chancre the organism can be found without difficulty especially if the lesion has not been treated I think that after you fail to find the organism, the Wassermann should be performed at frequent intervals, say two to three times a week for two or three weeks and then once a week for two or three months to be certain the lesion is not syphilitic because I believe that every case of syphilis which is not treated specifically will show a positive Wassermann In regard to those cases treated by the old methods at Hot Springs I cannot say positively because they have not been worked out scientifically I believe that the cases treated by inunctions and potassium iodid would give positive Wassermann reactions This treatment will not cure syphilis but only hold it in check If the Wassermann is negative we may find positive evidence of it in the spinal fluid Dr Barnes mentioned the length of time for treatment and I think that in the majority of cases he is right when he says that the patient should be treated for the remainder of his life, especially in late cases, in the so called tertiary period In regard to the relative efficacy of salvarsan and neosalvarsan Neosalvarsan I have used little because I believe it is not as efficacious as salvarsan I think the consensus of opinion of the workers along this line is that the relative efficacy is about as two is to three, or in other words, about three times as much in quantity of the neosalvarsan to about two of the salvarsan However, some of the army men—Nichols, I think—record neosalvarsan as considerably less efficacious—probably about seven to one In regard to sodium cacodylate, I have had no experience with it Heidingsfeld reported some work on sodium cacodylate in relation to the Wassermann test, but his work was not conclusive In regard to the use of insoluble preparations of mercury I do not consider them as advisable and the only possible reason for their use is that they necessitate less frequent visits to the physician and that, of course is an advantage in certain cases The insoluble preparations are only given once or twice a week while the soluble preparations are given more frequently There is danger, however, of the cumulative effect of the insoluble preparations and sometimes we have deleterious effects due to this accumulation Potassium iodid has a place in the therapy of syphilis in the treatment of cases in which we have gummas and also in cases of arthritis We get clinical results with potassium iodid It should be given in doses of 10 grains three times a day and increased 10 grains every ten days until the limit of tolerance is reached—sometimes as high as 900 grains a day Luetin has its place rather in congenital syphilis than in the acquired form of the disease We do know that it has been reported that potassium iodid has a distinct effect on the luetin—changing a negative into a positive reaction

COMPLETE VOCATIONAL DISABILITY FROM MUSCULAR IMBALANCE OF THE EYES

LLOYD MILLS, M D
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The term "eye strain" is commonly used to imply merely the effect on the globe itself of an uncorrected error of refraction, but it is not generally recognized that eye strain is never functional, in the sense of a neurosis, and that the lack of correction of such an error, or its imperfect or inaccurate correction, often produces its most distressing effect through its action on the extrinsic muscles of the eyes The amount of deviation which one eye may make from its fellow and still permit fusion of the images which reach the two eyes is so slight as not to be noted except by special tests This, in fact, has been one of the great drawbacks to the early recognition and acceptance of the exact factors of the eye strain, for it seemed incredible that perfectly normal appearing eyes could be the source of symptoms ranging from vague discomfort while reading to disability of so severe a type as actually to force people to give up their vocations or to become semi-invalids for life

The endeavor to focus irregular and distorted images clearly and simultaneously on similar parts of the two retinas, an act essential for that good fusion which controls the appreciation of our spatial relations, if long continued, invariably leads to uneven pulls of the external muscles of the eyes, which disturbs the normal balance and produces a vicious circle of excessive and vain waste of nervous impulses, further irregularities of muscle action and increasingly imperfect fusion and difficulty in seeing Sight is the only special sense which we use constantly while awake, and the continued drain of nervous energy in these cases leads eventually to general nervousness, more or less constant headaches, especially of the "sick headache" type, to chronic spasm and tenderness of the muscles of the back of the neck and, after a variable time, to total inability to use the eyes for any manner of near work, save at the certain cost of intolerable headache, nausea, vomiting and finally of complete nervous breakdown

It may appear singular that this disorder is almost limited to far-sighted eyes, until it is realized that only about 7 per cent of eyes are normal, that most persons are farsighted by heredity and that the congenitally short eyeballs of the farsighted, very often further burdened by astigmatism, are never at rest during waking hours from their endeavor to bring images to a focus on the retinas, unless relieved by suitable correcting lenses A mass of clinical evidence which is almost scientifically conclusive, further shows that this particular type of eye is peculiarly subject to cataract and to glaucoma, the lack of early and constant correction of the refractive error which causes the uninterrupted overwork of the ocular muscles leading to early sclerosis of the lens and to early fibrosis of the filtering or pressure-equalizing apparatus of the eyes, and thus to cataract or glaucoma, respectively The overwhelming clinical evidence forces and justifies the conviction, therefore, that our efforts in preventing simple glaucoma and senile cataract must lie along the lines of the early diagnosis and complete correction of the refractive errors and accessory conditions which cause overwork and premature aging of the eyes The field of service thus opened to ophthalmology is secondary in importance only to the admirable work being done in this specialty for the prevention of gonorrheal ophthalmia and its paragonorrheal relative, trachoma, and in the prevention of industrial injuries

Few physicians realize the importance of the accurate fitting and adjustment of glasses, and usually the fact that the patient is wearing glasses is accepted as evidence that the eyes may be eliminated from the differential diagnosis, regardless of when or by whom the glasses were prescribed, or of the training or skill of the prescriber It is no exaggeration to say that not more than one fourth of the glasses worn today are accurately fitted and adjusted, and it is a matter of daily experience to see instances in which the glasses not only do not correct, but actually add burden to the vision, excite faulty action of the muscles and not infrequently change cases of latent or incipient disorder of muscle action into conditions of almost intolerable suffering

The modern scientific examination of the eyes is a matter of mathematical precision, combined with a distinct tinge of art Carelessness, impatience and hurry have no place in this examination, and lead to disaster as certainly as does inadequate training It includes an inquiry into the visual power of the eyes, singly and together, when at rest and when actively functionating The effects of facial asymmetry and the relation of the eyes to the static posture of the rest of the body have to be considered, the near and distant limits of focusing power and the vertical and [illegible] the eyes when focusing near and horiz

distant objects must be determined The combined adductive and abductive power of the eyes must be measured and the strength of pull of the separate muscles of each eye compared A careful intra-ocular study concludes this routine examination, and no modern ophthalmologist would presume to prescribe a glass without the illumination given by the results of this intricate and painstaking investigation Of his nonoperative work, the accurate fitting of glasses makes the most severe demands on the skill and patience of the ophthalmologist

I have stated that the common predisposing cause of eyestrain is uncorrected farsightedness, usually combined with astigmatism Not all patients with this form of refractive error have symptoms, however, and many persons with small errors go through life without discomfort

An inquiry into the exciting causes of active trouble in the more than 600 cases which form the basis of this paper shows that the chief exciting cause has been excessive near work, either as a part of a vocation such as stenography, sewing, bookkeeping and study at school, or simple excessive reading for pleasure In numerous cases the onset has been coincident with the climacteric, many of the headaches and other related symptoms of which are the direct result of the loss of elasticity of the lens and an ensuing change of muscular balance Because of the more obvious psychologic and physiologic changes, the eyes have been ignored until intolerable symptoms have led to the belated call for relief Numbers of patients blame the sharp, white California sunshine for their trouble, though these patients are nearly all blue-eyed, the blue iris protecting the depths of the eye insufficiently because of its congenital lack of pigment In these cases frequently great relief follows the use of an appropriate tinted glass in combination with the necessary corrective treatment of the muscular condition Intranasal disease, the general weakness of chronic disease, and the ocular stress of learning new and close vocations, where no close work has previously been done, have been exciting causes in many cases It is of interest that the intense emotional and physical strain of active military duty has been responsible for thousands of cases of unsuspected errors of refraction and muscular disorder becoming manifest and troublesome during the present war

To be specific, there are three common forms of muscle imbalance of the eyes In the first, the tendency is to deviate up or down, in the second, the tendency to inward deviation is excessive, and the third group shows a corresponding tendency to outward deviation

The cases of tendency to vertical deviation, unlike the lateral forms, are usually anatomic in origin, owing to one orbit or to one eye being placed higher than the other and are further unlike the lateral forms in being associated with no particular type of refractive error, though an error of some degree is practically always coincident This form is usually congenital, though it may be the result of faulty postural conditions of the spine The ability of the eyes to fuse images which tend to separate either up or down is very slight, and small muscular errors in these directions often lead to distressing nausea and vertigo and to double vision, or to vision which falls just short of being double, but which is so confusing that the patient cannot estimate vertical distance correctly and cannot be trusted to walk stairs, to step from curbings or to cross a crowded street with any hope of safety In one of our recent cases of this kind the patient had passed through the hands of several internists from whom she received unsuccessful treatment for various nervous symptoms, without relief. She finally submitted to an abdominal operation in the hope that by some obscure route this might relieve the headache and blurred vision, the almost choreic nervousness and groping mental state, which the belief of her relatives magnified into the initial stage of an insanity, a belief in which she privately concurred. Her physicians, disregarding the axiom that he who treats a case of recurrent headache without having the patient's refractive error and muscle balance investigated is as culpable as he who neglects the blood pressure in a case of nephritis, had passed over the question of the eyes because the patient was wearing glasses fitted by an optician some months previously. These were found to be grossly incorrect and relief of symptoms was obtained and has been maintained to the present time by correcting her considerable farsightedness and astigmatism and by incorporating into the glass a prism which displaced the image of the high left eye to the level of that of the right eye, thus permitting a normal fusion which had been denied her for years.

Any condition which disturbs the lateral balance of the eye muscles creates a tendency for the images of the two eyes to separate sideways or to cross one another. The strain produced in maintaining fusion under these conditions leads very quickly to eye tire, and to so-called "sick headaches" or "bilious attacks" and, if uncorrected, to various forms of physical incapacity.

The class of patients who develop headache while motoring, shopping and at moving pictures, those who become trainsick and to a certain extent those who are most susceptible to seasickness practically always show relative overaction of the adducting muscles, whereby any and every attempt to turn the eyes sideways to view the scenery or the attractions of the shop windows, or to follow the action of a moving picture, demands a strong neuromuscular effort which rapidly leads to ineffectual nystagmic movements, dizziness and nausea. These cases, if neglected, are often stubborn and demand patient and skilled care. At times they can be cured by fusion and other muscle-building exercises; in rare cases the use of a prism is justified, and in extreme cases the more or less complete division of one or both of the overacting muscles is necessary. The prevention lies in the early correction of the underlying refractive error.

I have seen this form of trouble so frequently associated with intranasal disease and have found the restoration to a normal balance so much simpler after relief of the nasal condition, that I am inclined to class the imbalance in such cases as irritative, in contrast to that form of imbalance, also so frequently associated with chronic nasal disease, but characterized by relatively feeble adductive power, in connection with nasal disease, which I hold to be a toxic, pseudoparalytic stage of the same disorder. This relationship, I believe, has never before been suggested.

The final class of cases having a real or relative weakness of the adducting muscles is that in which the vocational ability is most frequently and seriously interfered with. The lack of sufficient adducting power prevents close work being done with comfort for any continued length of time, and, if not recognized early enough, the condition drifts with more or less rapidity into a state in which all vocations demanding concentration on work close at hand must be given up. A study of over 200 cases in all stages of this type shows that this real vocational disability occurs among stenographers, students, teachers, bookkeepers, seamstresses and milliners especially, types of workers who can least well afford the disability from the economic standpoint. Many of these cases have passed through the care of one or more physicians, without reflecting much, if any, credit on the profession as a whole, and the remark of one man "I have been doctored for everything under the heavens and have at last thought of my eyes," is an illuminating and not uncommon tale.

The principles and details of treatment of these muscle faults are matters of dry technical knowledge not appropriate for discussion here. It is enough to know that these cases, when recognized sufficiently early, are capable of cure without operative procedure.

The main object of this paper is to impress the necessity for early recognition of these conditions, whereby an enormous amount of late surgery, of needless suffering and of economic waste shall be prevented.

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PAINLESS LABOR*

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NEW YORK

The recent general agitation over the question of painless labor has accomplished much good in (1) stimulating research into newer and even older methods of painless labor; (2) demonstrating that the use of some preparation of opium, intelligently administered, is not as dangerous to the unborn child as we have in the past supposed, and (3) emphasizing the baneful results of fear, pain and shock of labor on the present and subsequent mental and physical condition of the highly civilized neuropathic woman of the day.

Many, possibly the majority, of the upper, highly civilized class of women are physically and mentally unfit to suffer an approach to spontaneous labor, by reason of their low resistance to the shock of labor. Hence these women have pathologic labors — are themselves neuropathic.

Unless guarded from too much suffering by analgesia and anesthesia, or perhaps surgical means, women of this class experience a profound physical and psychic shock in their first confinements from which some never fully recover, or they readily succumb to some intercurrent condition, as proved by the numerous mental and physical wrecks dating from the birth of the first child.

Shock from pain of labor in the highly civilized neurotic woman must, moreover, be reckoned with in general childbed mortality. Painless labor in these cases is a life-saving measure. Shock produced by the first stage of labor in these patients is a fact, not a theory.

In the majority of primiparous labors, reflex spasm of the soft parts and spastic or functional rigidity are a cause of unnecessary suffering and delay in this stage. The problem before us, therefore, is the control of pain in the first and longest stage, which often lasts a day or more. Here lies the foundation for the solution of the whole problem of painless labor, the need for which has never been more urgent, and for which there is no ideal single method at present

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* Read before the American Gynecological Society, Washington, D. C., May 11, 1916.

After the barrier of the cervix is removed and the case passes on into the expulsive stage, a much simpler condition presents itself In skilful hands, surgical intervention with surgical anesthesia, if indicated, are always in order at this stage Conditions will always arise, for example, in early rupture of the membranes, in which the necessity for painless labor will demand such surgical termination

The only absolutely painless labor is one terminated by surgical means with complete anesthesia The ideal narcotic, analgesic or anesthetic for painless labor should produce the anociassociation of surgical practice, namely, (1) the blocking of pain, fear, shock and reflex sympathetic factors, and (2) the removal of reflex spasm and its resulting spastic or functional rigidity of the birth canal

The most satisfactory painless labor method of the moment combines opium and antispasmodics for the 1st stage, with possibly vapor narcosis toward the end this stage and vapor analgesia and anesthesia for first and terminal parts of the second stage, respecively The narcosis aimed at should, until the perineal stage, be analgesic and not anesthetic in character The narcosis may be obtained either by drugs or vapor This is a difficult or impossible task unless one has had considerable experience

A good physical and mental condition during pregnancy will bring about a more stable condition of the nerves and more vigorous and persistent expulsive forces in labor The influence of Prochownick's diet on the size of the fetus must not be neglected in this connection

Sleep contributes to the success of the early hours of the first stage

Posture in the first or second stage does not materially affect the course of labor

Suggestion and hypnotism could go no farther than the very early hours of the first stage The same can be said of mild sedatives, including the bromids

Alcohol, either combined with opium or not, is commonly self-administered for painless labor among certain classes Amnesia and the elimination of spastic rigidity is produced by this drug

Rectal gas and drug anesthesia are sometimes resorted to Savitsky's method for the first stage consists of enemas of antipyrin and laudanum The use of chloral hydrate in the same manner for spastic rigidity of the cervix is well known I do not know of any advantage in the colonic absorption of ether, but there are possibilities in the oil-ether colonic anesthesia, if directed by a first-class anesthetist We are experimenting in this field at present and I regret that I cannot report on the method

The blocking of afferent impulses to the brain by spinal lumbar, nerve and nerve root anesthesia, and perineal infiltration secured by such drugs as cocain and novocain once promised a solution of the problem of painless labor This promise, however, has not been fulfilled We have had some experience with intraspinal injections, but have abandoned them because of the danger of headaches, vomiting and interference with uterine contractions Some obstetricians have, however, developed a high degree of technic in this direction The New York State Board of Health recently investigated a maternal death due to this method

Nerve and nerve-root anesthesia and perineal infiltration call for an elaborate technic, and have not been generally taken up The recent literature on these subjects is small and unconvincing

Opium alone, or combined with scopolamin, chloral, atropin, the bromids, strychnin, caffein, and possibly gas analgesia is our mainstay for the first stage It is narcotic and antispasmodic

Our hesitation to employ opium in labor in the past has been uncalled for, the experience of the last few years demonstrating that opium in its action on the mother, and particularly the fetus, is harmless, when its administration is limited to the first stage and its action does not lap over to the expulsive stage

With the two actions, narcotic and antispasmodic in view (even before the recent reintroduction of morphin and scopolamin) I have made it almost a routine practice in primiparous women, to give one or more doses of morphin, ¼ grain, with atropin, $\frac{1}{120}$ grain by needle, and 20 grains of chloral by mouth Indeed, on one of our hospital services, this procedure is practically a routine in primiparous labors The pain and distress is self-evident and we take for granted the spastic rigidity, whether or not found by palpation This means that we employ the method in both the so-called higher and lower classes

The results have been excellent, as we follow this treatment with vapor narcosis in the second stage and with surgical anesthesia, by chloroform, ether or nitrous oxid-oxygen for the perineal stage Even huge doses of the bromids will not take the place of chloral hydrate for the foregoing purpose

In prolonged first stages, the combination can be repeated to advantage, and, so far as we have observed, with safety to both mother and child, always excepting toxemia cases in which chloral as well as chloroform is prohibitory

We usually obtain by these methods rest from pain for three hours or more, rest from fright and mental excitement, rest from shock-producing influences, and renewal of labor subsequently with increased resistance and a patient in improved physical and psychical condition to face the expulsive stage

Whether the combination of morphin, atropin and chloral has a local action on the rigid muscle fibers, whether a functional motor paralysis or an anesthesia, does not always appear

Numerous attempts have been made to combine sedatives and narcotics or give them in sequence De Aragon of Havana has recently reported his experience in obstetric analgesia with a mixture of heroin, scopolamin, atropin and sparteín Some obstetricians do not use atropin or scopolamin without digitalis or strychnin

The use of "obstetric" ether and chloroform is too well known to need comment Both, in time, lessen the force of the contractions and thereby delay labor Unlike nitrous oxid vapor, they possess no oxytocic action They are the pain controllers of the second stage, especially the perineal stage To the old saying of "morphin for the first stage and chloroform for the second," we must today add nitrous oxid and oxygen for the second

As an intermittent analgesic or anesthetic, the nitrous oxid-oxygen mixture is well adapted to the second stage Webster and his associates have done much to make this method of painless labor popular In the second stage, it does not interfere with uterine contractions as does ether and chloroform, but by arresting pain prevents shock and exhaustion, and resistance not being lowered, the patient is the better able to withstand subsequent infection or complication My experience has been limited entirely to its use in the second stage, and in all the mass of recent literature on the subject, I gather that it is of no value in the first stage, or else the authors avoid mention of its status in this stage

In the hands of inexperienced hospital interns, our results with this method have been deplorable, if not dangerous to the patient Under the management or supervision of a first-class anesthetist, the method works out most satisfactorily We have experimented with three gas machines and have finally settled on a simple single bag instrument

I dissent from the statement that the administration of nitrous oxid-oxygen is safe in unskilled hands It is difficult to reconcile the statement of the recent advocates of nitrous oxid-oxygen analgesia and anesthesia, and the teachings of some of our most expert users of this gas combination On the one hand, we are repeatedly told that the use of nitrous oxid and oxygen for analgesia and anesthesia is a simple matter for one to become proficient in after a few trials On the other hand, we have the statement of perhaps the greatest authority on the use of nitrous oxid-oxygen in dental surgery [1]

> I am not prepared to commend its use as an analgesic pure and simple, my own experience—comprising rather a long series of cases—being that whenever any part of the operation would really produce actual pain, the only method of eliminating shock is the induction of anesthesia Analgesia may be excellent in selected cases, we are perfectly willing to accept the statements of those who report this, but I should like to know whether or not, at critical moments during their operations, anesthesia is not induced A trained and experienced assistant should always be present *Nitrous oxid and oxygen in unskilled hands is more dangerous than either ether or chloroform*

In other words, in analgesic work, there is danger that the patient coming out from under the influence of the gas may suffer from the effects of shock due to the acuteness of the suffering or, on the other hand, the danger of anesthesia in the hands of the novice Some of the best obstetricians are confessedly poor anesthetists

SUMMARY

Nitrous oxid-oxygen analgesia or "obstetric" ether or chloroform for the second stage of labor pushed to anesthesia for the perineal stage and, possibly, forceps delivery with vapor anesthesia to eliminate part of the second stage is a satisfactory procedure

Moreover, nitrous oxid-oxygen analgesia or anesthesia is superior to any other during labor, because of its oxytoxic action

Eventually an established method of painless labor may be considered among public health questions

Lessening or abolishing the pain of labor may in the future limit birth control and criminal abortion

Drug addiction after a prolonged drug narcosis in the neuropathic is a possible contingency

The dangers to the unborn or newly born child are negligible when drug narcosis is limited to the first stage of labor

28 West Fifty-Sixth Street

A CASE OF TESTICLE GRAFTING WITH UNEXPECTED RESULTS *

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NEW YORK

At the age of 13 years the patient in the following case lost both testicles as a result of a complication of mumps He retained almost no sexual characteristics, there being only slight, occasional evidence of activity of ganglia connected with the penis

Last year it seemed desirable to try the effect of grafting testicle from another individual, with the object of obtaining the internal secretion with its accompanying cenesthesia of masculinity, but without any idea of securing any development of spermatozoa.

CASE REPORT

Mr H, aged 27, entered the Post-Graduate Hospital a year ago He was a man of mature and alert mentality for his age, and intellectually in every way quite normal Physically he was somewhat undersized, with a face suggestive of youthfulness rather than of femininity The voice was youthful

At the time of the patient's entrance to the hospital the prostate gland was not observed to be present The scrotum was shriveled and apparently quite empty of sex organs, the penis was small, the skin wrinkled, and the pubic hair sparse

It was my intention to secure a testicle graft from a hernia patient of about the same age and color This patient, however, made such a strong reaction to the von Pirquet test for tuberculosis that I decided not to make use of him, but secured a graft from another hernia patient 54 years of age who made negative response to the Wassermann and von Pirquet tests

The graft as secured consisted of a wedge-shaped segment of testicle which was sliced into three parts, each approximately 3 mm in thickness One of these slices was placed beneath the sheath of the left rectus abdominis muscle, another slice was placed beneath the right rectus abdominis sheath and the third slice was introduced into the right side of the scrotum, an incision having been made down to the remains of the testicle There was barely a trace of the original testicle, epididymis and spermatic cord Whatever remains of testicle were present would not exceed a number one shot in size In the left scrotum was placed a Weir s celluloid testicle for the purpose of producing an effect of mass upon that side

The patient did not observe any immediate effect from the testicle graft, and that portion which had been inserted in the right scrotum gradually began to undergo absorption Curiously enough, as the graft began to disappear the vestige of the patient's testicle began to enlarge and the testicle has now grown to become about one third normal size and is apparently still growing It is softer than a normal testicle, but we may distinguish not only a growing testicle proper, but a growing epididymis and an enlarging spermatic cord upon that side

In March of the present year it was decided to insert another graft for the purpose of hurrying matters along, and on this occasion opportunity was given for observing that the newly developed testicle appeared to be quite normal in contour with normal appearing tunic and blood vessels Coincidental with the development of the testicle, evidence of its presence became gradually more and more marked, to such a degree that the patient has recently asked if he might marry The morning erections in particular are full and apparently normal and of frequent occurrence The wrinkled appearance of the skin of the penis has changed to a normal smoothness, with increase in size of the organ There is apparently a little line of prostatic tissue to be made out at the site of the prostate gland As yet there has been no change in the voice

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[1] Hasbrouck James F Transactions of the Dental Society of the State of New York 1914 p 164

* Read before the Surgical Section of the New York Academy of Medicine May 15 1916

The unique feature of this case, and the one which introduces perhaps an entirely new principle, is the fact of stimulation of the vestigial testicle into development It is possible that this resource may be employed upon other patients who have lost testicles from mumps, and perhaps upon patients who have undescended testicles, after the latter have been placed in the scrotum by some operative procedure

We are confronted with another question Is it possible that in some cases of ovarian grafting the ova have been furnished, not by the graft, but by latent cell rests in the broad ligaments, which embryonic remains have been stimulated into activity through the influence of an ovarian graft in the vicinity We know that such cell rests do occur, and Lucas-Championnière suggested this explanation for one of my cases of ovarian grafting in which the patient has borne two children Opposed to this idea and confirming the theory that in some cases of ovarian grafting the graft may retain its full functioning identity, is the testimony from Harvard University Laboratory in connection with the ovarian crossing of guinea-pigs Although both white and black colors appeared in the progeny after ovarian crossing in guinea-pigs, there still remains a question belonging to recessive and dominant characters

For the most part we may assume that heteroplastic grafting of any sort will be followed by disappearance of engrafted tissue unless the physiologists of tomorrow are enabled to prepare individuals for accepting the tissue of other individuals The very favorable reports of heteroplastic grafting made by Lydston and others leave us still with knowledge that heteroplastic grafting of tissues and of organs has not as yet been placed upon a satisfactory physiologic basis

Two years ago I reported a case of testicle grafting[1] in a patient who had lost both testicles ten years previously as the result of an accident For nearly ten years there had been no erection, and the patient had become corpulent and excessively nervous The immediate effect of testicle grafting in this case was to restore him to a feeling of sexual manhood, which persisted for some months A letter received from this patient on March 27 of the present year states that "the operation has entirely relieved the nervous symptoms, but the masculine effect was only temporary, as at present there is no indication that anything could be accomplished"

The new point introduced by the case of Mr H, that of stimulation of latent cell rests into activity by a graft which itself disappears, would seem to open a vista which has not been anticipated

In my own experimental work, both with ovarian and testicle grafting, patients have been given to understand that the procedures were wholly experimental in their nature It is on this basis only that I have cared to assume the responsibilities of sex organ grafting

616 Madison Avenue

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[1] Morris, Robert T New York Med Jour, Oct 17, 1914

Procrastination—The world has ample knowledge of its perils, natural and created but it remedies only on the heels of disaster and safeguards only after sacrifice—D C Seitz

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LUMBAR PUNCTURE FOR THE RELIEF OF CONVULSIONS IN PUERPERAL ECLAMPSIA

REPORT OF TWO CASES

W T Wilson, M D, Navasota, Texas

Case 1—A mulatto, aged 35, multipara, mother of five children, five and one-half months pregnant, had nineteen convulsions in twenty-one hours before I saw her, May 17, 1915 Her blood pressure, fifty minutes after convulsions, was 255 I bled her, drawing off 36 ounces of blood The pressure was reduced to 190 She had passed urine just before the first convulsion, but none after I catheterized her, obtaining 1 ounce of very dark urine, which solidified about one half on boiling When I saw her a short time afterward, she had had the twenty-third convulsion, was in a state of coma, and showed no improvement

On account of high blood pressure, I inserted the needle in the third lumbar interspace, and drew off 40 c c of slightly bloody fluid, no anesthetic was used There was no evidence of pain, as the patient was in profound coma The fluid flowed as if under pressure On removal of needle, consciousness immediately returned The patient at once drank freely of water She had no more convulsions, and remained rational Two hours later she voided 10 ounces of urine, three days later the urine was free from albumin, and the patient's condition was apparently normal Magnesium sulphate was used as a purgative following the lumbar puncture

June 17 following, she had a miscarriage, the child was dead I did not see the patient at this time, but arrived after the delivery was completed She had had no convulsions, nor any unusual symptoms of nervousness during the miscarriage, her health has remained good to the present time

Case 2—Sept 1, 1915, I was called in consultation with Dr W L F Knolle to see Mrs B, white, primipara, aged about 21, of German descent Her family history was good The patient gave a history of headache and diarrhea Dr Knolle had been called on account of the severe and frequent diarrhea at full term The patient had had convulsions before he arrived, and had seven or eight before 11 30 a m, the time of delivery with forceps The child was alive

The patient had a convulsion fifteen minutes after labor, one every one or two hours until 3 p m and then one every three hours until 3 a m, September 2, between 3 and 4 a m she had four convulsions, between 4 and 5 30 she had four convulsions, at 5 30 she had two convulsions in the space of ten minutes, after that she had one every thirty minutes until 7 30 a m, the time of operation This made a total of more than twenty convulsions

The cerebral excitement had been so severe all night that it required three or four attendants to control her During the previous twenty-four hours she had been given saline purgatives, bromid, chloral hydrate, apomorphin, morphin and veratrum viride with no results At 7 a m she was catheterized and 2 or 3 ounces of urine with considerable albumin were drawn off

At 7 30 a m I made a lumbar puncture in the third lumbar interspace, and drew off 6 drams of clear fluid The patient at once became quiet, and not another convulsion followed At 9 30 a m she drank some water, at 11 a m voided urine in bed, showed evidence of return of consciousness, and took water freely At 12 m she was semiconscious At 2 p m she voided 12 ounces of urine voluntarily At 8 p m she was rational She made an uneventful recovery

I used lumbar puncture in both cases, because I had seen convulsions controlled in my cases of cerebrospinal meningitis only a few years before, by drawing the fluid from the spinal canal before injecting serum

COMMENT

The high mortality, 35 per cent, is no argument against the usefulness of the treatment in proper cases No treatment, undertaken as a last resort to save life, can have a brilliant record A study of the various articles shows that not all cases have been reported, thus, a writer may say he has treated several cases, but may report only one If these unrecorded cases ended in recovery, the mortality would be somewhat lower

Lumbar puncture is a treatment only for the convulsions of eclampsia, not of the toxemia of pregnancy However, with the convulsions controlled we are in a better position to treat the toxemia Puncture seems to be indicated in those cases in which convulsions are severe and frequent It does not, however, interfere with other forms of treatment for the disease

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A CASE OF PROGRESSIVE NEURAL MUSCULAR ATROPHY

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The following case is presented in order to add it to the number reported

History—C J H, a man, aged 24, was admitted to the United States Naval Hospital, Washington, D C, Jan 13, 1916 The family history was negative, except that one brother had had a 'nervous" attack some years previously, but had been well since The father, mother and one sister were living and well No brothers or sisters were dead There was no history of any nervous or muscular disease other than that noted of brother

The patient's birth and development were normal He learned to walk and talk at the usual age He stated that he had had the ordinary diseases of childhood, from which he made good recoveries His adolescence was uneventful He enlisted in the United States Navy, Oct 13, 1909, and served less than one year Then while breaking up a box, a piece of tin struck him in the right eye, lacerating the cornea This resulted in a cataract, which was needled, and he has about 6/20 vision There were no complications or sequelae This injury caused his discharge from the naval service, June 24 1910 He returned to his home in New York state, and worked on the farm The patient stated that he had always been strong and had done hard labor He had always abstained from alcohol and denied all venereal disease

Present Illness—This began in the fall of 1911 At that time the patient noticed that both of his shoulders were suddenly affected with a peculiar sensation of weakness, and that he was scarcely able to raise his arms He remembered having had much difficulty in placing the bedclothes over his shoulders, but he had perfect use of his hands This condition gradually altered to a decided discomfort, but he felt no acute pain and did not notice any swelling It was considered that his condition was 'rheumatism,' and also that he had sprained his shoulders However, he had no recollection of injuring these or even of using them to excess This attack lasted for about three months He gradually regained his strength and felt as strong as ever During a part of this time he was confined to bed, but was not seriously ill He did not recall ever having had any fever or chills During this attack no other muscles than those above the shoulders were involved

The next attack came on gradually in August, 1913 This time both knees were involved At first the patient noticed that they were weak and later that they were swollen The muscles of his legs were sore and the "cords underneath the knees were tender If he bent his knees he would sink to the floor and scarcely had strength enough to hold himself up He noticed that while in bed and usually about 1 or 2 o'clock in the morning his legs would sweat rather freely During this attack he was forced to use crutches for about three months He was not confined to bed, but was able to lounge about the house This attack lasted approximately six months He apparently regained his former strength and was able to go on with his work No other joints than the knees were involved during this attack

The next attack began in May, 1914 The patient first noticed slight weakness in the legs In about a month he was unable to walk at all, and in another month he noticed that the arms were becoming involved At first they were weak and later on he was unable to use them at all The wrists and elbow joints were affected and showed considerable swelling The patient was unable to move his legs back of him, and when sitting down he could not raise his feet off of the floor The calves of the legs became swollen and the hands showed a good deal of contraction During the spring and early summer he was confined to bed He was unable to care for himself and it was necessary for him to be fed His condition gradually became worse until about the middle of July After this he showed slight improvement, and gradually became better until he was able to go about on crutches He states that his hands and wrists became "awfully hot" Between attacks and during them his general health has been good He believes that he is worse before a storm, and that he is especially susceptible to cold His only complaint at present is "occasional sharp pains running through his heart"

Examination—The patient exhibited atrophy of the muscles of the legs, forearms and shoulder girdles, especially the deltoids, of the latter, more on the left than the right The rest of the body seemed well nourished The patient used crutches, and with their help was able to get about He could stand alone, provided he flexed the knees somewhat There was integrity of the muscles of the thighs, trunk and face There was marked foot drop on both sides The involvement of the muscles of the hands was very prominent and the appearance was characteristic, with wasting of the interossei and contractures The patient was able to perform various coarse movements, such as feeding himself, but it required considerable effort and ingenuity to accomplish this Ability for finer movements was lost

Reflexes and Patellars There was no movement of the legs but there was some response of quadriceps tendons

The Achilles tendon was absent on both sides Plantars were absent both toe and defense The cremasteric reflexes were normal The upper, middle and lower abdominal reflexes were normal The triceps, biceps, ulnar and radial reflexes were slight, if present at all Jaw response was absent Masseteric response was absent The muscles of the legs, arms and chest responded slightly and slowly to mechanical stimulation When the muscles of the arms were struck repeatedly there was a persistent tremorlike movement

Coordination Exercises The knee-heel exercise was done on both sides but slowly The leg movements, anterior, in, up and down were good and equal The arm movements forward backward, anterior, in and rotation were good and equal on both sides The left foot was more difficult to move than the right

Sensation Light touch was apparently normal Localization of light touch was good On the right forearm the patient did not always distinguish sharp from blunt In other segments the response was normal On the feet he did not distinguish readily between heat and cold On the hands he did not always distinguish heat from cold but was usually correct The stereognostic sense was quite good

The atrophied muscles showed a varying degree of reaction of degeneration, while the arm muscles, apparently not involved, showed a diminution of faradic response The ophthalmologic examination was negative except for the residual of the injury mentioned

There was no sphincter involvement No mental symptoms were apparent The patient in spite of his difficulty, was quite cheerful and optimistic

Laboratory Findings Urine and blood were normal Wassermann reaction was negative The cerebrospinal fluid was clear in appearance The pressure was 90 mm of water The Wassermann and Noguchi reactions were negative The Nonne reaction was negative One cell per cubic millimeter Colloidal gold curve 1 1 1, 1, 1, 1, 0, 0, 0 0, 0

The patient remained in the hospital under observation until Feb 4, 1916 During this time his condition did not change except that he expressed himself as being more comfortable which was no doubt due to his living under more favorable conditions than he did outside of the hospital He returned to his home in New York state and reported by letter, April 1 1916 that he seemed somewhat better

Therapeutics

HYPERTENSION

(*Continued from page 586*)

SYMPTOMS

In hypertension, as long as the heart, which is probably hypertrophied, remains perfectly competent, there are few symptoms, and the person does not seek advice until he notices one or more of several possible conditions He may be dizzy, his head may feel full and tight, he may have headaches, or he may have some cardiac pain or distress Other persons do not seek advice until there is a slight weakening of the heart, showing the strain under which it is laboring In most of these high tension cases, the patients have rather a slow heart, provided the heart is sufficient Eyster and Hooker[52] found that the slowing of the heart in high blood pressure is due to action through the vagus nerves either from the inhibitory center in the medulla or reflexly by stimulation of the peripheral nerves of the vessels

Another symptom for which the patient frequently seeks advice is that he is unable to relax from his business cares, when off duty He also finds that he works at a higher tension, and that coffee and tea, alcohol and tobacco stimulate him more than usual He sleeps restlessly, and dreams at night He has an increased frequency of urination in the morning, especially after taking coffee, and sometimes gets up once or twice at night to urinate He is irritable at times, short breathed on exertion, and sometimes has indigestion He may have pains or aches in his heart He may find that he dislikes to lie on his left side

However much it may upset the patient and render him more nervous to inform him that his blood pressure is too high, it is necessary to give him this information People now suspect the condition, and they frequently seek their physicians to determine if the blood pressure is too high and, from reading health journals, more or less realize some of the things, at least, that must be done to decrease the pressure Consequently, the very things that are advised or ordered give the patient the diagnosis, whether he is told directly or not Hence, we must talk freely with the patient, much as we do in heart defects, and get his cooperation, stating how frequent the condition is, how often it is readily improved, and how little it may interfere with long life

Wiener and Wolfner[53] state that they have found with blood pressure that the pupils of the eyes are larger than normal, and that they readily contract to the stimulus of light, but immediately return to their previous size

PROGNOSIS

Janeway[54] presented statistics of 458 patients with high blood pressure, 67 per cent of whom were men Of these 458 patients 212 had died, and he found that the women with high blood pressure lived longer than men with high blood pressure They did not seem as likely to have apoplexy or cardiac failure About 85 per cent of high tension cases occur between the ages of 40 and 70

While he believes that a systolic pressure of over 160 mm is pathologic, he does not find that any definite prognostic conclusions can be drawn from the height of the pressure Of course the most important concomitant symptoms of high pressure are cardiac, renal, and cerebral, and the typical headache, as he terms it, is a symptom of serious import In considering headache in persons over 40, we must eliminate the eye headaches produced by the need of presbyopic glasses or by the need of stronger lenses, as this need is a frequent cause of headache Dizziness and vertigo may occur, without headache, and drowsiness, though not so frequent a symptom as insomnia, often occurs

Janeway finds that all kinds of apoplectic attacks may occur from simple transient aphasia to complete hemiplegia, and thirteen of his patients who had died and thirteen of those living at the time of this report showed failure of eyesight as an initial symptom of arterial disease

Janeway deplores the too frequent diagnosis of neurasthenia in these patients This diagnosis probably accounts for the frequency with which neurasthenics have been said to have high blood pressure Patients with high blood pressure may show all kinds of symptoms simulating neurasthenia, but hypertension is a much better diagnosis than neurasthenia for such patients, and will lead to more rational treatment

Ninety-seven of these patients had hemorrhages somewhere, most frequently epistaxes, sometimes hemoptysis Janeway did not find that purpuric spots on the skin occurred early in the disease in any of his patients

Gastro-intestinal disturbances were not much in evidence unless the kidneys were insufficient Intermittent claudication in the legs occasionally occurred While angina pectoris and edema of the lungs were not infrequent causes of death in men, it was a rare cause of death in women Dyspnea is a frequent symptom, and one for which many patients seek medical advice

A constant systolic blood pressure of over 200 shows a probability that the patient will ultimately die either of uremia or of apoplexy Janeway found that those patients who are to die from cardiac weakness show cardiac symptoms early in their disease He found that rapid continuous loss of weight pointed to an early fatal termination

Of the 212 patients who had died, seventy-one had shown cardiac insufficiency at the time of the first examination, twenty-one showed albumin or casts at that time Of course it should be repeatedly emphasized that chronic interstitial nephritis may be in evidence with either albumin or casts alone, or without either being present

Janeway sums up his conclusions by stating that "from the time of the development of symptoms indicative of cardiovascular or renal disease, four years will witness the death of half the men and five years of half the women By the tenth year half the remainder will have died, leaving one fourth both of the men and the women who have lived beyond ten years" The causes of death he would place in the following order gradual cardiac failure, uremia, apoplexy, some complicating acute infection, angina pectoris, accidental causes, acute edema of the lungs and cachexia An early occurrence of myocardial weakness shows a 50 per cent probability that death will be caused by cardiac insufficiency Heart pains comprise another important indicator of future cardiac death, perhaps not an angina Nocturnal polyuria would indicate a uremic death in about 50 per cent of the patients, and typical headache or cerebral symptoms show the probability of uremic death in more than 50 per cent, and death from apoplexy in a large number of the other 50 per cent As just stated, rapid loss of weight is a bad symptom

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[52] Eyster and Hooker Am Jour Physiol, May, 1908

[53] Wiener, Meyer, and Wolfner, H L A Reaction of the Pupil, Strongly Suggestive of Arteriosclerosis with Increased Blood Pressure, The Journal A M A, July 17, 1915, p 214

[54] Janeway, T C A Clinical Study of Hypertensive Cardiovascular Disease, Arch Int Med, December, 1913, p 755

Janeway[55] has previously reported seven patients with hypertension who had diabetes Diabetes generally, on the other hand, causes a low blood pressure Patients with this trouble and with hypertension, and without nephritis, probably have an increased secretion from the suprarenals

We may sum up the prognosis in hypertension as follows Hypertension alone is not of unfavorable omen, if it is not readily reduced by ordinary means, it is more serious If associated with kidney heart or liver defect, it is most serious If there are such serious conditions as edema, ascites, lung congestion, cyanosis and great dyspnea, the prognosis is dire

Obesity being a cause of high blood pressure, it should be treated more or less energetically, even if the individual does not continue to add weight

Stone[56] believes that the higher the diastolic pressure the greater danger there is of cerebral death, while a patient with a very high systolic, but a diastolic pressure of 100 or lower, is in more danger of cardiac death He urges a greater consideration of the pressure pulse in determining the load of the heart and the great danger from a sustained diastolic pressure of over 105 as sooner or later bound to cause myocardial symptoms This load of the heart is also shown by an increased pulse rate and increased respiratory efforts In cardiac failure, as the systolic pressure falls the diastolic is likely to be increased, and the pressure pulse thus diminishing, allows insufficient blood to go to the medullary centers, and death soon occurs Therefore, in acute illnesses a sustained pressure pulse gives a better prognosis than a diminishing pressure pulse The strenuous measures that should be used to lower a high diastolic pressure are contraindicated when the diastolic pressure is already low, even if the systolic pressure is high If a high systolic pressure begins to fall more or less rapidly the heart shows fatigue, and should be stimulated by digitalis or strophanthin

Rowan[57] finds that a diastolic reading of 100 mm or more usually means that there is a narrowing of the lumen of the vessels, owing to stimulation of the vasoconstrictors, although it may mean the existence of a true arterial fibrosis While a real atheroma generally causes a reduction in diastolic blood pressure, or at least but slight increase, he has found in syphilitic cases with arteriosclerosis a high diastolic pressure If the blood pressure cannot be reduced by ordinary measures, arteriosclerosis is probably present Several blood pressure examinations must be made, while the patient is being treated, to establish the diagnosis

Rowan finds the reading of the pulse pressure to be of great importance, as this will indicate, sometimes before any other symptom is present, that the patient is either improving or doing badly, and it also aids in indicating the proper medicinal treatment

In arteriosclerosis the systolic pressure may be high while the diastolic is low, hence there is a large pressure pulse If the heart becomes weak the systolic pressure will drop, and any improvement caused, especially in aortic regurgitation, is by an increase of the systolic pressure

Rowan finds, as has long been recognized, that a conclusion as to whether or not cerebral hemorrhage will occur cannot be made from the condition of the radial arteries, as patients with soft radials may suffer from cerebral hemorrhage, while those "with hard, sclerosed, pipestem-like arteries may live to a great age and die of anything rather than apoplexy "

Swan[58] has studied the blood pressure in fifty cases of disturbed thyroid, and finds that functional myocardial tests show that the myocardium is nearly always disturbed in these patients

Before taking up the subject of treatment of high blood pressure, it may be suggested that a high diastolic pressure with a falling systolic pressure may require vasodilators on the one hand or cardiac tonics on the other, and sometimes the decision can be made only by proper tests In other words, if the diastolic pressure is lowered the heart will be relieved On the other hand if the diastolic is being raised by an increased venous pressure from a failing heart, digitalis, strychnin and caffein may be of benefit in lowering the diastolic as well as raising the systolic However, if there is a high systolic and a low diastolic pressure, vasodilators are often contraindicated

(To be continued)

New and Nonofficial Remedies

The following additional article has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association Its acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book New and Nonofficial Remedies'

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation but that, so far as known, it complies with the rules adopted by the Council

W A Puckner, Secretary

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Action and Uses—See general article Pituitary Gland N N R 1916 p 220

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[55] Janeway T C A Study of the Causes of Death in One Hundred Patients with High Blood Pressure The Journal A M A Dec 14 1912 p 2106

[56] Stone W J The Differentiation of Cerebral and Cardiac Types of Hyperarterial Tension in Vascular Disease Arch Int Med November 1915 p 775

[57] Rowan J J The Practical Applications of Blood Pressure Findings The Journal A M A March 18 1916 p 873

[58] Swan Interstate Med Jour March 1916 p 186

THE JOURNAL OF THE
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SATURDAY, SEPTEMBER 2, 1916

THE RELATION OF STABLE AIR TO SANITARY MILK

The summer season, with its incidence of gastro-intestinal disorders in milk-fed infants, and of milk-borne infectious disease, always serves to direct attention to the problems of the milk supply Only a few years ago it was the chemical composition of the milk — its resemblance to or departure from the make-up of human milk — that formed a lively subject for debate The ease with which cow's milk can be "modified" in percentage composition has eliminated some of the occasion for discussion of this theme Later, the question of the existence of tuberculosis or other communicable disease in the dairy herds attracted notice This is at length thoroughly understood, even if it is not yet fully controlled More and more the center of interest is being narrowed to the bacterial contamination of milk

The cow and the persons who handle milk have been taken into consideration as agencies in the transfer of bacteria to milk But milk is inevitably exposed at some time to the air In the belief that stable air in particular is a significant source of contamination, the regulators of modern dairy practice have formulated many rules designed to prevent the germs in this air from coming into contact with the milk In view of the assumption that air pollution is one of the important sources of difficulty in the production of clean milk, it is essential to obtain reliable statistics on this topic This does not imply that the subject is new or unexplored, but rather that, in the judgment of competent dairy bacteriologists, it has not been adequately attacked in the past

For purposes of comparison it may be recalled that Winslow and Browne[1] found that the average number of bacteria per cubic foot (about 28 quarts) of country air was 56, for city street air 72, for offices 94, for factories 113, and for schools 96 Ruehle and Kulp[2] have ascertained that the number of bacteria found in the air of representative stables during such barn operations as milking, feeding hay, grain and the like, usually varies between 50 and 200 per liter (quart) of air Occasionally much lower results were secured and also a few much higher, the high record being 825 per liter of air When sterile water was "milked" in a representative stable from an apparatus designed to imitate the exposure of milk in this process in the dairy barn, the germ content of the liquid was found to average 12 per cubic centimeter, with a maximum of 73 and a usual range of from 5 to 15 When the same process was repeated under extreme dusty conditions it was possible to stir up several thousand bacteria per liter of air, so that the water acquired from 30 to 100 organisms per cubic centimeter Milking under the worst of these conditions, the experimental observers tell us, would, as shown by the results where an artificial dust was raised, have added from 100 to 1,000 or more bacteria per cubic centimeter to the milk On the other hand, under the conditions usually found in representative stables, the number of bacteria added to milk drawn would have been so few as to be undetectable by known methods of analysis

In interpreting the importance of the air as a source of milk contamination, other possible sources, such as the interior of the udder, the cow's body, the milker's hands and clothes, and the condition of the utensils, must be kept in mind According to Harding and Wilson,[3] an average of 500 bacteria per cubic centimeter may be expected in all milk as drawn from the udder Under normal barn conditions the air contamination thus is even less than that from the udder, and both are small in comparison with that from unsterilized milk pails

Our readers are aware that in drawing up rules for the production of sanitary milk, much emphasis has been placed on practices designed to control the amount of dust The bacteriologic experts of the New York Experiment Station,[2] reviewing the quantitative facts now available on the subject, state that in no case have preconceived ideas regarding the effect of certain factors on the production of clean milk so overruled the results of actual observation as in this case They add that dairymen and sanitarians who have been interested in the production of clean milk have been as badly misled as have surgeons and physicians This was only natural because of the way in which our knowledge of air bacteria was developed Bacteria do occur in the air of cow stables in relatively larger numbers than they do in the air of many other places Occasionally under exceptionally dusty conditions, the number of bacteria getting into the milk from the air may be approximately as high as the number derived from the udder, but the number so derived under ordinary conditions does not increase the germ content of the milk to any important extent Lest there be any misunderstanding, however, we must emphasize again the other highly significant sources of bacterial contamination of milk The unsterilized milk pail,[4] frequently contributing many thousands of micro-organisms per cubic centimeter, affords an illustration of one remediable factor among several others beside stable dust

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[1] Winslow, C E A, and Browne, W W The Microbic Content of Indoor and Outdoor Air, Monthly Weather Review, 1914, xlii, 452

[2] Ruehle, G L A, and Kulp, W A The Germ Content of Stable Air and Its Effect on the Germ Content of Milk, Bull 409, New York Agric Exp Sta, 1915

[3] Harding, H A, and Wilson, J K A Study of the Udder Flora of Cows, Tech Bull 27, New York Agric Exp Sta, 1913

RENAL GLYCOSURIA

The validity of the designation "renal diabetes" has repeatedly been called into question The term was intended to be applied to a condition resulting in mild glycosuria but not accompanied by other characteristic symptoms of true diabetes mellitus, such as the presence of hyperglycemia and the impaired ability of the organism to utilize glucose The relegation of the glycosuria to an increased permeability of the kidney for sugar, a condition experimentally attainable by the use of certain substances, notably phlorizin, must always be established beyond question by a demonstration that the blood sugar content is either somewhat low or, at any rate, never in any degree in excess of what might be expected under the dietary regimen prevailing, that is, between 0 07 and 0 11 per cent So few of the alleged instances of renal diabetes have withstood the test of critical examination to demonstrate their right to be included in this category that some experts in the pathology of metabolism have seriously questioned whether the classification is justifiable Less than ten years ago von Noorden pointed out that the entire clinical symptomatology of so-called renal diabetes was still to be ascertained, and in expressing doubt as to the individuality or identity of such a disease he designated the previous teachings about it as a *luftiges Kartenhaus,* an airy card castle

Theoretically there is no serious reason for denying the possibility of a "renal glycosuria," inasmuch as an increased renal permeability has been shown to exist temporarily at times during pregnancy and after poisoning with certain drugs Within the past decade, during which the technic of sugar estimation in the blood has reached a higher degree of perfection and comparative ease of application, a few cases have been reported which bear the evidence of meeting the standard set for justifying the designation of renal diabetes, or better, renal glycosuria The instances are still rare enough to justify reference to fresh examples when these have been carefully studied by competent investigators The newest case showing glycosuria, without the other abnormalities characteristic of impaired carbohydrate metabolism, is recorded by Lewis and Mosenthal[5] of the Medical Clinic at the Johns Hopkins Hospital Here is their characterization of the anomaly The slightly diminished phenolsulphonephthalein excretion, the slight elevation of Ambard's constant above the normal, as well as the glycosuria, point to a depressed kidney function The absence of any further subjective or objective signs, past or present, leads to the conclusion that a renal glycosuria is an interesting anomaly, but of no importance as a whole

An additional reason for calling widespread attention to such cases of glycosuria without hyperglycemia lies in the fact that almost none of them have been followed for any length of time, and consequently the prognosis remains to be ascertained One naturally asks whether the defect is inherent or acquired, whether the impairment is permanent and unchanged, or progressively modified Obviously at the present time the typical antidiabetic treatment is not indicated It is not difficult to construct hypotheses as to the glycosuric manifestations which might be expected in suitable cases of varying renal involvement At present the primary desideratum is a firmer structure of new facts referable to this category of disease

THE HEART'S ACTION AT HIGH ALTITUDES

It is only a few years ago that it was customary to discuss the physiologic and pathologic phenomena associated with life and activity at high altitudes under the general designation of alpinism[1] Although the Alps were the locality in which the earlier classic studies on the physiology of altitude were conducted, leading to the establishment of an international laboratory on Monte Rosa, the investigation of the numerous important problems which were suggested has been continued in other parts of the world in which the conduct of scientific researches at levels of low barometric pressure has become possible In the United States, Pike's Peak in Colorado, with an altitude of more than 14,000 feet, has in recent years afforded splendid opportunities for the study of man at high altitudes The summit is readily accessible without effort, the opportunities for residence and observation on the peak are acceptable, and at Colorado Springs, with an altitude of 6,000 feet, a base for the preparation and conduct of scientific operations is readily available In addition to numerous less pretentious excursions to this locality, the Anglo-American Expedition of Douglas, Haldane, Henderson and Schneider[2] in 1912 deserves special mention Since then, Schneider of Colorado College has added many facts to our knowledge of the circulation of the blood in man at high altitudes[3]

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[4] Prucha M J Harding H A, and Weeter H M Utensils as a Source of Bacterial Contamination of Milk Science 1915 xlii 353

[5] Lewis D S and Mosenthal, H O Renal Diabetes Bull Johns Hopkins Hosp 1916 xxvii, 133

[1] See, for example Cohnheim, O Physiologie des Alpinismus, Ergebn d Physiol 1903 ii i 612

[2] Douglas C G Haldane J Henderson, Y, and Schneider, E C Phil Tr Roy Soc London 1913 B ccii 262 Anglo American Expedition to Pike's Peak, editorial The Journal A M A, Aug 10, 1912 p 449

[3] Schneider E C and Sisco D L The Circulation of the Blood in Man at High Altitudes I, Am Jour Physiol 1914 xxxiv 1 II ibid 1914 xxxiv 29 The Influence of Altitude on the Blood, editorial The Journal A M A, Nov 1, 1913 p 1634

In addition to its intense scientific interest, the study of the effects of altitude on man can also claim certain immediate practical value Residence in mountainous districts is a necessity for certain persons, transit through them is essential to others, while the unquestionable influence of altitude on the human organism, though it is still largely unanalyzed, has long been called on to exert therapeutic effects It belongs within the domain of the uncertainties of so-called climatology

Much is now definitely appreciated with respect to certain responses of the body to low barometric pressures, notably the change in the number of red corpuscles and other reactions of the hemopoietic system, more remains to be learned The etiology of mountain sickness is not entirely cleared up, and the unlike responses of different persons to the same environment at high altitudes raises important questions Recently Schneider[4] has compiled the results of new observations in a series of expeditions to Pike's Peak which show clearly that physical exertion makes greater demands on the heart and blood vessels at very high than at low altitudes They also indicate that during the first days of residence at the high altitude, physical work should be reduced to a minimum Schneider finds that the normal circulatory conditions for the majority of men at an altitude of 14,109 feet are an increased rate of the heart beat, an unchanged or slightly lowered arterial pressure, and a lowered venous pressure Physical exertion, as at a low altitude, affects all three, the pulse rate is further accelerated, and the arterial and venous pressures are both raised, the change in each, however, is substantially greater at the high altitude Furthermore, the stimulating influence of lowered barometric pressure is the more pronounced the more vigorous the exertion, that is to say, the curves representing the acceleration of the heart rate and the increase in pressures rise more rapidly than the curve which expresses the addition in rapidity or vigor of exertion These facts clearly show that the heart and blood vessels, the arteries but not the veins, undergo a greater strain during exertion at the high altitude than they experience for the same form of exercise at the low altitude, in that the venous pressure rarely goes above the low altitude average Furthermore, the heart undergoes greater strain during exercise at the high altitude, which is indicated in the longer after-period of high rate of beat and high pressures and also in the prolonged subnormal period of systolic pressure

One may conclude from the observations made on Pike's Peak that a certain degree of acclimatization is possible, but the physical condition or previous training of the individual is of primary importance Schneider points out that it would be an easy matter to injure the heart seriously during the early days of residence at high altitudes The risk to the heart is less for men who are physically strong because of athletic training

For those persons who are in excellent physical condition who have reacted well to the altitude, the changes of acclimatization will permit of moderate exertion without the lowered barometric pressure manifesting itself by the more pronounced acceleration of heart rate and an increased pressure It seems probable that in vigorous work even those who are best adapted to the high altitude will continue to give a more pronounced reaction than would occur at a low altitude

THE NORMAL TOLERANCE FOR SUGAR

In recent years, functional tests by which it is intended to ascertain the capacity of the body as a whole, or of specific tissues and organs, to perform the physiologic tasks for which they are supposed to be equipped, have become more and more familiar in the routine of clinical diagnosis Some of them, such as the phenolsulphonephthalein test for kidney function, have achieved a deserved popularity and widespread application, owing to the faithfulness with which they disclose the information which is sought Not a few of the functional tests, particularly those applied to digestive or metabolic performances in the organism, have failed to meet the expectations of their sponsors Some of the shortcomings in this direction have already been pointed out in The Journal

In certain individuals the capacity of utilizing glucose is supposed to be lowered It may become sufficiently deficient in some instances to lead to so-called alimentary glycosuria following an overindulgence in carbohydrate food In a healthy person it is scarcely possible to produce glycosuria by the lavish administration of starchy food, since the liver can apparently store up the excess of sugar as fast as it is produced by the digestion of starch in the alimentary canal and absorbed into the portal circulation There is a widespread belief that when preformed glucose is fed, however, the assimilation limit may be more readily reached through rapid and unduly large absorption of soluble carbohydrate It may become very important to ascertain an incipient functional defect of this sort, since it may be the indication of some impending diabetic defect Accordingly it has been customary in some clinical laboratories to ascertain the "assimilation limit" for glucose by feeding a measured quantity of this carbohydrate or some other sugar, such as lactose (milk sugar) or levulose (fruit sugar), at one time, and watching for a transient glycosuria as a result To the examination of the urine for sugar before and after the administration of the carbohydrate, the analysis of the sugar content of the blood may now easily be added

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[4] Schneider, E C *The Circulation of the Blood in Man at High Altitudes, III, The Effects of Physical Exertion on the Pulse Rate, Arterial and Venous Pressures*, Am Jour Physiol, 1916, xl, 380

Success in ascertaining an abnormal tolerance in a procedure of the sort described evidently hinges on the ability to postulate what a normal functional capacity of a healthy individual in such circumstances should be Lately it has been asserted that whereas the "assimilation limit" is low in diabetes, it is abnormally high in certain conditions involving a malfunction of some of the endocrine glands, notably the pituitary Taylor and Hulton,[1] of the Department of Physiological Chemistry at the University of Pennsylvania, recently remarked that by common consent, rather than by accurate experimentation, the limit of assimilation of glucose on alimentary administration has been set at from 200 to 250 gm on the empty stomach From this figure downward the student of diabetes applies the test, from this figure upward the student of the diseases of the ductless glands applies the test The Philadelphia investigators have made a number of observations on healthy medical students, to whom glucose was administered in strong solution and in whom the blood sugar content was ascertained immediately before and three hours after the sugar was given As a result it is clear that nearly all the subjects tolerated the ingestion of 200 gm without exhibition of glycosuria Of nine subjects who ingested 300 gm, only three displayed glycosuria Of the six who ingested 400 gm, only two had glycosuria In five instances 500 gm were given, with the production of glycosuria in but one Taylor and Hulton regard 500 gm as the physical limit of ingestion, except in one who has trained to the test, it is very large in bulk, inclines to nauseate, and apparently the excess is not rapidly absorbed, so that the test probably means no more than does the administration of 400 gm, which is usually tolerated Polyuria occurred rarely, and there was no relationship between the polyuria and glycosuria Intestinal disturbances were not observed It appears, by way of contrast, that healthy persons cannot ingest 300 gm of levulose without intestinal disturbances Whether this result is inherent in such amounts of levulose, or is due to some impurity in the supposedly pure preparation used, could not be determined The further general conclusion was drawn that even the larger quantities of sugar do not markedly influence the sugar content of the blood In the majority of healthy adult males, according to Taylor and Hulton, there is, apparently, no limit of assimilation of glucose, a glycosuria does not regularly follow the largest possible ingestions of pure glucose

Woodyatt, Sansum and Wilder[2] have very properly pointed out that the common clinical practice of estimating sugar tolerance as the number of grams of glucose which can be given by mouth all at once and just fail to cause glycosuria will not justify any tenable conclusion respecting the power to utilize glucose They say

> When sugars are administered by the stomach, the length of time during which they are actually brought to the cells must depend on the motor power of the stomach and of the bowel and on the rates at which the sugars can be absorbed, and even when they are given subcutaneously or by any other route which involves absorption as a prelude to their entering the blood, the rates at which they enter the blood will depend on the rates at which they are absorbed By any of these, but especially by the oral method, the actual rate of entry of sugar into the blood and tissues at large must vary with a wide range of physical physiologic and pathologic conditions over which we have no control, nor will it ever be possible by such methods to force sugar to enter the blood any faster than it can be absorbed The rate of sugar absorption is a self-limited thing for when a certain concentration of sugar is once present in the blood, no quantity given by mouth or subcutaneously or intraperitoneally can raise it higher

The fact that prolonged hyperglycemia did not arise in Taylor and Hulton's trials on normal persons is in itself an indication that one could scarcely expect marked glycosuria to manifest itself It has been found that a man weighing 70 kg, when resting quietly in bed, may receive and utilize 63 gm of glucose by vein per hour without glycosuria The normal tolerance limit for glucose, expressed as a velocity, is established at close to 0 85 gm of glucose per kilogram of body weight hourly, which agrees approximately with what Blumenthal has established by repeated small intravenous injections in animals[2] It can easily be computed from such statistics that if a man's resting requirement were 3,000 calories per day, he could thus receive double what he needed, or enough to cover the caloric expenditure of the same man during heavy physical exertion In view of these facts perhaps the supposed increased "tolerance" for glucose in some of the ductless gland disorders relates to a gastro-intestinal rather than a metabolic function

Current Comment

CAUSES OF POLIOMYELITIS

"It's not the heat that makes you hot, it's the humidity," says Mr Common Citizen as he stands before the weather department kiosk The subject is one that baffles physiographers, physicians and physiologists But what does he care? Mr Common Citizen is a philosopher he has a mind to think with, therefore he thinks And lest these evanescent gems of thought should evolve fruitlessly, he utters them aloud and writes them for publication An epidemic of disease such as infantile paralysis gives him a wonderful opportunity Scientific investigators—those who have studied the subject—say that the cause is not definitely known, that the method of transmission is not absolutely proved With Mr Common Citizen it is different, he knows all about it, and sends his views to the newspapers If he has had a fragment of medical training, he may send his opinion to a medical journal Usually his reasoning is easy to follow For example, a Philadelphia author has observed that infantile paralysis occurs in hot weather, abates after a storm, is frequent among Italians, breaks out in New York, follows railroad traffic, ergo, it is due to constructing subways The Italians dig the subways, the dust flies on their clothing, the dry weather makes things dusty, the Italians carry the dust home to their children

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[1] Taylor A. E. and Hulton Florence The Limit of Assimilation of Glucose Jour Biol Chem 1916 xxv 173

[2] Woodyatt R. T Sansum W D and Wilder R M Prolonged and Accurately Timed Intravenous Injections of Sugar The Journal A M A Dec. 11, 1915, p 2067

Another comes from Newark Says this contributor to the newspapers

> From my long experience as a member of one of the branches of medicine for the past thirty-one years, I have never heard or found any cure for a person who is suffering from hydro-cynic [sic] acid poisoning (prussic acid) In my opinion, the present cases of so-called infantile paralysis really are suffering from the poisonous hydro-cynic acid You immediately will say, "How do young children become so saturated with this terrible poison?" Simply from the decomposed vegetable refuse, which is left lying in an uncovered condition in our streets When this garbage lies in the sun and heat, uncovered, for three days before it is removed by the street cleaning department, as is the condition now existing in the city of Newark and in many of the surrounding towns, it naturally decays rapidly With this decay comes a chemical action, and the portion of this refuse which is decaying takes the form of a poison gas—hydro-cynic acid Our children and some of our adults breathe in this gas and if they are not of a healthy condition this acid begins its deadening work and the person is stricken with a sickness, infantile paralysis

According to another newspaper item, an unorthodox theory has been advanced It states that

> Dr B H J, who is not a doctor of the orthodox school of medicine, is in this city to study the epidemic of infantile paralysis and advances the theory that poliomyelitis is not a germ disease at all and that it is neither contagious nor infectious
>
> Dr J who claims that he has been successful in treating a number of cases of infantile paralysis in Pittsburgh without the use of drugs, explained yesterday that he believed the cause of the disease lay in the intestinal tract of the child and that the fermentation of proteids and albumin there caused auto-intoxication and eventually paralysis of various muscles

The following, by a physician, also deserves a place in this symposium

> While scientists are studying to issolate the specific germ and prepare a culter to treat the malady, there are thousands of victims dying, so it would appear the most important thing in the fight is to discover, if possible, a cure for the malady and let the discovery of the cause for less strenuous time It has been suggested to me by many prominent physicians that I have two or three journals print my views at once so that my suggested treatment may be at once supplied My theory is that infantile paralysis is caused by a specific germ which germ up to the present day has not been successfully issolated Now I contend that in every infection by this germ there is an inefficient amount of adrenalin in the blood current

And the following also comes from a physician

> It is neither contagiou[illegible]or the work of the scape-goat germ, but is a destructive pr[illegible]ss resulting in extinct vitality If the organism is devitalized through a long line of indiscretions, its vitality will eventually become extinct as the consequence Infantile paralysis is therefore caused by disorders of development or the falling short of maturity by arrest of development The Book of God—The Bible—has sounded the warning down the ages that in the last days of the dispensation of evil when the Lord God comes forth to harvest the earth of the crop grown, that He will march through the land in indignation and before Him will go the pestilence

Certainly the following suggestion is scientific! It is from a New England physician

> *Your attention must have been called to the prevalence of infantile paralysis and how the laboratory experts are at a loss because no monkeys are to be had* Let me say that my wife a few years ago fed her mother's house cat on oatmeal Two litters of (6) kittens had kitten paralysis 50 per cent The same cat fed on whole wheat had healthy litters Now could not the American Medical Association take this up and study the cases for poliomyelitis It seems to me it ought

The above quotations are offered as samples There are many others One suggests that the milk supply may be at fault (strange no one thought of that), another suggests that lake swimming has something to do with it, a "drugless physician" says that 85 per cent of the cases are cholera infantum or "summer complaint" One physician writes to a Philadelphia newspaper that "foreign rats have the germ and that the flea is its vehicle of contamination" Dogs and cats, he says, are carriers and breeders of fleas, and if people will wash their dogs and cats with a mixture which he suggests, the epidemic will end In the meantime, while theorists ponder and philosophers cogitate, health officers continue to do their best to prevent by rational methods the propagation of the disease, physicians at the bedside relieve suffering, and research workers spend days and nights in laboratories and postmortem rooms attempting to discover the etiology and mode of transmission of the disease

THE U S PHARMACOPEIA IX

The ninth revision of the United States Pharmacopeia became official this week, Sept 1, 1916 It is more fully reviewed on another page,[1] here we desire merely to call attention to two points what the book is and what it is not It is a book of standards for drugs, it is not a book of standard remedies The Committee of Revision of the Pharmacopeia included physicians and pharmacists (retail, wholesale and manufacturing), but the pharmacists were in the majority and in control The majority of the representatives of the medical profession on this committee would have preferred to see the bulk of the Pharmacopeia reduced and its value as a work of reference enhanced by the rejection of therapeutically worthless drugs The representatives of commercial interests, on the other hand, argued that it was necessary for the Pharmacopeia to provide standards for drugs in more or less general use, whether worthless or otherwise The force of this argument is somewhat impaired by the fact that the National Formulary, which has also been made a book of legal standards, now includes individual drugs as well as combinations; the new edition of the Formulary, in fact, contains a large number of drugs which had been dropped from the U. S. Pharmacopeia VIII. The principle of making use the sole criterion for admission to the Pharmacopeia, however, on the whole carried the day. It has not been strictly observed; good results from the efforts of the medical contingent are to be observed here and there, as in the deletion of elixir of the phosphates of iron, quinin and strychnin and of emulsion of cod liver oil with hypophosphites. That these instances were not expressions of policy on the part of the Committee on Revision, but merely deviations from policy, may be seen by a glance at the contents of the new Pharmacopeia. These include substances which have been shown to be inert, like the hypophosphites[2] (calcium, potassium and sodium hypophosphites), complex and obsolete mixtures, like the compound syrup of sarsaparilla, and drugs which have been tried and found wanting, like saw palmetto berries. Even substances seldom used by the medical profession, but chiefly or altogether by the public, like sassafras, hops and peppermint (the herb), are standardized and made official. It seems difficult to discover any principle by which the sphere of the Pharmacopeia may be definitely marked off from that of the National Formulary. There is one great advantage in specifying U. S. P. drugs and preparations. Physicians who do so invoke legal standards of purity and identity. The only way to be sure of obtaining substances of therapeutic efficiency, however, is to exercise discrimination. The Pharmacopeia is no guide. Being prepared mainly by pharmacists to meet the needs of pharmacists, the Pharmacopeia of course contains much matter of little interest to physicians and entirely foreign to scientific medicine.

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[1] See page 764, this issue

THE CAUSE OF SEX

There is perhaps no process in life which excites more general interest than the causation of sex. It is generally believed that the sex is not established until after fertilization, and popular superstition in many communities abounds in methods of securing the desired sex. That sex is controlled by diet, as advocated by Schenk in 1897, has been a popular belief; but attempts to influence the sex of an embryo or larva by altered nutrition have been futile. It has been frequently observed that certain lots of insects poorly fed produce a greater number of males. This observation, however, is better explained by the fact that insect females, because of their higher rate of metabolism, succumb more easily in the absence of proper food supply than males. Another method of sex control is that advocated in 1909 by Russo, who asserted that by feeding or injecting lecithin in pregnant rabbits he was able to secure a greater percentage of females. No one has been able to confirm these results. It is only in recent years that a seemingly scientific basis for sex control has been found and experimentally tested in lower animal forms. Thus in dinophilus, a sea worm, Lenhossek[1] has shown that two types of ova are present, and that males and females are produced at will by fertilization of the proper type of ova. In some insects, Wilson[2] and others find different types of spermatozoa, and believe these to be the determining factors. Recently Loeb[3] has furnished additional evidence that sex is determined by the kind of sperm cell engaged in fertilization. Loeb, Delage and others have succeeded in producing larvae from unfertilized eggs. This was accomplished in eggs of sea urchins, starfish and annelid worms and mollusks by chemical stimulation. Guyer found that by injecting lymph into the unfertilized egg of the frog, development could be induced, and Bataillon later showed that the same process could be initiated by pricking the unfertilized egg with a needle. Loeb has succeeded in raising seven parthenogenetic frogs from unfertilized eggs stimulated by pricking. These frogs are now over a year old, and are normal in every respect as regards appearance and behavior. As two of the frogs recently died, their sex has been determined. This had been done on other parthenogenetic frogs, but the results were inconclusive, as the gonads of young frogs and tadpoles contain both sex elements. The four parthenogenetic frogs studied by Loeb were all males. Loeb concludes from this work that all eggs of the frog are alike, but that there are two kinds of spermatozoa, one with and one without a sex chromosome, and that if a spermatozoon of the former type enters an egg, a female is produced. Since in artificial parthenogenesis no sex chromosome is introduced, the parthenogenetic frog is a male. Further work is now started to determine whether the spermatozoa of parthenogenetic frogs can fertilize normal eggs, and no doubt much of interest will be learned from experiments of this nature.

NATURAL ICE

It is a common practice, especially in the field of organic chemistry, to purify substances from soluble impurities by freezing. As an example, chemically pure, or, as more commonly called, "glacial" acetic acid is the frozen portion from a concentrated mother liquor. It would be expected, therefore, that ice taken from moderately large streams or ponds which are not grossly polluted would be much superior to the water from which it is formed. Cummings[4] pointed out that not only is this the case, but also the number of bacteria is reduced by the freezing, and—of greater importance—the longer the ice is kept, the slighter the chances for the bacteria to survive. Natural ice should therefore be as good a product as artificial ice, if not better. The entire volume in artificial ice is generally frozen, which does not allow the impurities to be expelled, whereas in natural ice only a portion of the water is frozen. Natural ice is usually stored for a considerable time, while artificial ice is used shortly after manufacture In this connection, the recent report of Edward Bartow[2] of the Illinois State Water Survey is interesting Bartow has made a number of sanitary examinations of ice obtained from rivers and ponds in Illinois, and also, in some instances, of the water from which the ice was obtained Out of forty-nine samples, he found that in only one ice did the turbidity exceed five parts per million, while the color of all the samples was so low that it could not be detected in an ordinary drinking glass The highest total residue found in the ice examined was thirty-four parts per million, but in most samples, it was less than ten, which compares favorably with distilled water Always of importance in water analysis is the chlorid content, as a relatively large amount indicates sewage In the specimens of ice examined, only traces of chlorid were found Of greater interest to the physician, however, is the fact that the bacterial content of the ice was greatly reduced in comparison with the number of bacteria in the water from which the ice had been frozen In one case with 12,000 bacteria per cubic centimeter in the "raw" water, there were but 125 in the ice, 520 were reduced to 3, 1,400 to 16, etc, in every instance practically 99 per cent reduction, which is better than that obtained from the average filtration plant Gas-forming bacteria were greatly diminished As Bartow states, "nature certainly does its share toward furnishing pure natural ice If reasonable precautions are taken so that no ice is obtained from grossly polluted ponds or rivers, and the surface of the ice is protected, there need be no difficulty in placing pure ice on the market" Even though ice (natural or artificial) is pure, there still remains a great source of infection from improper delivery and handling Care should be exercised that the ice and ice chest are washed with pure water, irrespective of whether the product is for an ice drink or used as a chilling agent for food

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[2] Marriott, W. McKim: The Therapeutic Value of the Hypophosphites, The Journal A. M. A., Feb. 12, 1916, p. 486.

[1] Lenhossek, quoted by Morgan: Pop. Sc. Month., 1903, lxiv, 97.

[2] Wilson: Science, 1909, p. 53.

[3] Loeb: Proc. Nat. Acad. Sc., 1916, ii, 313.

[4] Cummings, H. S.: Safe Ice, Pub. Health Rep., Aug. 7, 1914, p. 2006. The Danger of Infection from Ice, editorial, The Journal A. M. A., Aug. 29, 1914, p. 786.

THE "OPEN FORMULA" BUGBEAR

Slowly but surely the public is coming to realize that one of the most effective ways of discouraging fraud in the "patent medicine" business will be to demand that the names and quantities of the potent ingredients of all "patent medicines" be declared on the label This is worrying the "patent medicine" fraternity As one of their spokesmen has admitted, the publication of the essential ingredients in "patent medicines" would make it very difficult for the manufacturer to continue to make fraudulent claims for his product and "get away with it" Through their press agents, the nostrum makers are employing all the arts of sophistry to convince the public that nobody wants a declaration of the potent ingredients of "patent medicines" except the doctors, the jealous competitors of the "patent medicine" makers, that such a requirement would be confiscatory that it would constitute a deprivation of property without due process of law, etc, *ad nauseam* One of the publications devoted to "patent medicine" interests recently utilized much space in an effort to show that physicians, while in favor of "open formula" requirements when applied to "patent medicines," are opposed to any legislation that might require physicians to let their patients know the composition of the medicines prescribed It probably is a fact that there are some physicians who honestly believe that there are certain instances in which it is against the best interests of the patient to let him know just what drugs are being prescribed It is, at any rate, a debatable question But the opinions held by physicians on this problem are entirely beside the point in discussing the "patent medicine" business Like Mr Gilbert's "flowers that bloom in the spring," it has nothing to do with the case! People who put themselves in the hands of physicians do so, presumably, in the belief that they, as laymen, do not consider themselves competent to diagnose and treat their own ailments Then it is for the physician to decide what is the matter and what should be done for it, the responsibility rests on him In the taking of "patent medicines" an entirely different element is introduced Here the patient considers himself competent to diagnose and treat his own ailment, the responsibility is personal Obviously, he should be permitted to know what he is going to pour down his own throat No amount of fine spun casuistry can befog the fundamental fact that the prescriber of drugs should know what he is prescribing

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST, SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC)

CALIFORNIA

Personal.—Dr David A Beattie has been appointed health officer of San Jose, succeeding Dr Paul Sanford——Dr Alice Rhode has been appointed instructor in research medicine in the George Williams Hooper Foundation for Medical Research of the University of California——The foundation has sent Dr Ernest Linwood Walker, a member of its staff, to carry on investigations as to tropical diseases in the upper Amazon He will be stationed for most of the year 1,500 miles up the river in the region of Porto Zelho, Rio Madeira, Amazon, Brazil He has there the privileges of the hospital maintained by the Madeira Mamora Railroad, of which Dr Allen M Walker is chief surgeon——Dr Reginald Knight Smith has been appointed assistant clinical professor of obstetrics in the University of California Medical School

GEORGIA

Conference on Charities and Correction—A conference on charities and correction is to be held in Macon in October immediately following the meeting of the State Federation of Women's Clubs The Georgia Conference on Social Service was the name selected for the new organization

Hospital Notes—Work has been commenced on the new Macon City Hospital, and the contract states that it is to be completed within 240 working days The contract price is $80,949 One of the new buildings is to be a five-story structure with a fresh air porch on each floor and a roof ward containing private rooms, the children's department, the medical ward and operating rooms The second building is the service building, and the third is a three-story structure containing an outpatient department dispensary for whites and negroes, and on the two upper floors, wards and rooms for negro patients ——The annex of the new Columbus City Hospital is completed The building is a two-story and basement structure, 40 by 50 feet, and has cost with equipment, about $15,000 It will accomodate seventy-five patients, and will be used for incurable cases and communicable diseases ——A charter has been asked for the Frances Berrien Hospital, Rome The incorporators are Drs John T McCall, Robert H Wicker, John L Garrard and Augustus F Routledge.

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[2] Bartow, Edward Univ Illinois Bull 19, 1916, Water Survey Series No 12

ILLINOIS

Epidemic Dysentery—An epidemic of bacillary dysentery has prevailed at Brereton where there have been thirty two cases with eight deaths

Note on Sanatoriums—The matter of building county tuberculosis hospitals comes before the voters of Ogle, Adams, Morgan, Livingston, La Salle, Rock Island, Greene and Kane counties at the November elections

New Bureau Begins Work—The new sanitary engineering bureau of the state board of health has moved to Jacksonville from the University of Illinois Urbana Its principal activities are control over the installation of water supply and sewage systems, sanitary surveys, supervision of city waste collection and disposal, and street cleaning, examination of swamp and overflow lands within the state with a view of encouraging their reclamation for both health and profit, investigation of methods of heating and ventilating auditoriums, sanitary inspection of public school buildings, typhoid fever investigations, public addresses on sanitary engineering topics and informal advice by correspondence

Personal—Dr Harry W Ackmann, Rockford, has been appointed physician for the Rockford City Traction Company and the Rockford and Interurban Company, succeeding the late Dr William R Franklin ——Dr John J Fyke completed a half century of practice at Odin, August 24 and was presented with a silver loving cup ——Dr George E Bushnell, Rochelle is ill at the Pennoyer Sanitarium, Kenosha, Wis ——Dr Charles E Crawford, Rockford, was elected physician of the grand lodge of the Order of Sons of St George, at its annual meeting held in Waterloo Iowa recently ——Dr S W Latham Eldorado at present a member of the state senate from the Fifty-First District, announces his candidacy for lieutenant governor of the state on the Republican ticket

Chicago

Crile in Chicago—Dr George W Crile professor of surgery in the Western Reserve University Cleveland, delivered a lecture on August 21 to the graduates of the medical department of the University of Illinois on Exhaustion and Restoration

Not Augustana but Augustinian—The report that the Augustana Hospital authorities are planning to erect new hospital buildings at Marquette Manor is incorrect The work is being undertaken by the Augustinian Society of Illinois

Personal—Dr Charles F Lynch, Chicago, has been appointed city health officer of Lansing Mich ——Dr Willis O Nance, who for six years has been alderman of the Sixth Ward in Chicago is a Republican Candidate for Member of the Board of Trustees of the Sanitary District of Chicago

Campaign Against Tuberculosis—A city wide campaign against tuberculosis will begin September 15 The initial plans for the survey to include eight square miles in the most congested part of the city, were completed at a meeting of the board of directors of the Municipal Tuberculosis Sanitarium August 23 The district wherein the work is to be initiated extends from State Street to Ashland Avenue and from North Avenue to Twenty-Second Street About $20 000 will be spent on this survey, which will be in active charge of forty-two physicians and a necessary clerical force—the work being superintended by Drs Thomas A Hogan John Ritter and Clarence L Wheaton It is expected the survey will be completed and a spot map prepared, showing every case of tuberculosis in the territory, and that this work will be accomplished by Jan 1 1917

KENTUCKY

State Medical Society Changes Date of Meeting—It is announced that the annual meeting of the Kentucky State Medical Association will be held at Hopkinsville, October 10 13, instead of October 17-20, as originally announced

Personal—Dr Charles A Edelen, Louisville, has been appointed chairman of the medical staff for the state fair for 1916, succeeding Dr Irvin Lindenberger, who is in the state service at Fort Thomas ——Dr Hervey S Keller, Frankfort has been appointed a member of the tuberculosis commission to succeed Charles A Edelen, Louisville, resigned ——Dr Urban V Williams of Frankfort has resigned as a member of the state tuberculosis commission ——Dr Milton Board, Louisville, has been elected medical examiner for the Workmen's Compensation Board ——Dr Dunning S Wilson Louisville, has resigned as superintendent of the Waverly Hill Sanatorium, on account of his duties with the field hospital, Kentucky National Guard ——Dr Frank G Le Rue, Smithland, recently appointed superintendent of the Western State Hospital, Hopkinsville, has taken charge of the institution ——Dr Henry P Sights, formerly superintendent has returned to his former home at Paducah and resumed practice

MARYLAND

School Opening Delayed—Health Commissioner Blake of the municipal health department, on August 23 issued an order forbidding the opening of the public and private schools of Baltimore until September 25

City Playgrounds Closed by Dr Blake—Health Commissioner Blake ordered all children's public playgrounds closed, and children of all ages will be kept away from them until the fear of an epidemic of infantile paralysis has passed

Soda Water Glasses to Be Abolished—The state board of health, by advertisement, served notice on all druggists and dispensers of soft drinks that glasses in which they have been serving drinks to their customers must not be used after September 1 unless they are willing to destroy the glass after it has been used once

Hopkins to Seek Causes of Infantile Paralysis—An investigation is to be begun, August 25, by the Johns Hopkins Hospital into the causes and spread of infantile paralysis The research will be conducted by the Department of Children of the Harriet Lane Home, and the Department of Pathology Dr Montrose T Burrows of the Pathological Department and Dr Kenneth D Blackfan, resident pediatrician of the Harriet Lane Home will have charge A minute record is to be taken of the cases in the city and of the movements of the victims in the weeks previous to developing the paralysis

MISSISSIPPI

Personal—Dr Gilbert F Douglas, physician of the East Mississippi Insane Hospital, has resigned

New Unit for Sanatorium—A new unit is to be added to the Meridian Tuberculosis Hospital by Mr A J Lyon, consisting of a cottage, to accommodate two patients, together with a common reception room

Decision Against the State Board—Chancellor O B Taylor, in the case of Dr William T Matthews, county health officer of Le Flore County, against the Mississippi State Board of Health rendered a decision, July 22 that the state board of health cannot remove any officer from his position except in cases where he has been indicted and convicted in a court of law The state board is said recently to have removed Dr Matthews and to have appointed Dr F M Santifer in his place The charge against Dr Matthews was that he failed to report a case of smallpox Dr Matthews claims that the charge was trivial and was trumped up for political purposes ——The report of the state board of health for June shows a marked increase in the cases of typhoid fever as compared with 1915 the respective figures being 533 and 819 and in malaria of which 10 703 cases were reported in June 1915 and 12 878 cases in June 1916 The most marked decreases have been in amebic dysentery and pellagra

NEW YORK

Amendment to Medical Practice Act—The July *Bulletin of the Department of Health* gives a summary of an investigation conducted by the public health committee of the New York Academy of Medicine to ascertain the opinion of those in authority in the medical colleges of this state with reference to the desirability and practicability of amending the Medical Practice Act so that a fifth year as intern in a hospital shall be required of all applicants for a license to practice medicine in this state A questionnaire was sent to the ten medical colleges of the state and answers were received from nine From the statistics available it is shown that a large proportion of the students of New York state secure hospital positions immediately after graduation, where they fail to do so the reason is usually due to their financial status Information from the Department of Education shows that there is a sufficient number of internships in the state to provide for all graduates of medical schools In 1914 there were 459 graduates and 859 internships The attitude of the medical schools is unanimously favorable to the principle of requiring a year of hospital experience Among the practical difficulties in the way of a realization of this ideal is the lack of standardization of hospitals The difficulties in the way of this legislation have not been deemed insurmountable and an amendment has been submitted for approval to the faculties of the medical schools All that have replied have endorsed the amendment except the New York Medical College and Hospital for Women The Medical Society of the State of New York at its last annual meeting also approved of the amendment The committee has finally adopted the proposal to amend the present public health law relative to the practice of medicine as follows

> Section 1 Subdivision 4 of Section 166 of Chapter 49 of the laws of 1909, entitled "An act in relation to the public health, constituting Chapter 45 of the consolidated laws," is hereby amended to read as follows
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> "4 *Has studied medicine not less than* four school years, including four satisfactory courses of at least (seven) eight months each in four different calendar years in a medical school *registered as maintaining* at the time a standard satisfactory to the regents ( ), and has performed satisfactory clinical work for a period of twelve months in a hospital which has a daily average of not less than thirty patients and has not less than fifty beds devoted to the treatment of medical and surgical diseases, and which is registered by the regents as maintaining at the time satisfactory clinical and laboratory standards New York medical schools and New York medical students shall not be discriminated against by the registration of any medical schools out of the state whose minimum graduation standard is less than that fixed by statute for New York medical schools, etc "

New York City

Personal—Dr John Van der Poel sailed on the *Nieuw Amsterdam* for Rotterdam on August 25——Dr Charles G Child, Jr, has resigned from the Woman's Hospital

Age, Sex and Nativity of Poliomyelitis—The weekly *Bulletin* of the department of health reproduces an interesting table showing the age and sex distribution of 848 fatal cases of infantile paralysis which occurred from January 1 to August 1 Only six of these deaths occurred previous to June 1 Of these deaths 507 were males and 431 females The largest number of deaths occurred among those 2 years of age The total number of deaths of those under 5 years of age was 419 males and 266 females During the age period from 5 to 9 years there were 76 deaths of males and 60 of females During the age period from 10 to 14 years there were only 17 deaths, 9 male and 8 female There were only 10 deaths among the older age groups There were only 5 deaths among colored children, 2 males and 3 females The following table shows the nativity of the parents of the 848 fatal cases

Both parents born in U S		253
Both parents born in Italy	177	
Both parents born in Russia	115	
Both parents born in Ireland	40	
Both parents born in Austria Hungary	39	
Both parents born in Germany	23	
Both parents born in other foreign countries	120	
Total foreign		514
Mixed native and foreign		81

Infantile Paralysis—On Friday, August 26, there were 94 new cases reported and 22 deaths This is the lowest number reported for any Friday in August and for any day of the week For the week ending August 19 the average number of cases reported daily was 130, while for the week ending August 26 it has been 108 cases On August 25 there were 3,936 cases of infantile paralysis in the hospitals of the city ——The brace fund of $15,000 which was originally asked for by Dr Emerson has been completed, but it has been found that this sum will be inadequate to provide for all those needing orthopedic appliances and it is now announced that $26,000 will be required——The Dispensary and Hospital for Deformities and Joint Diseases which has opened a special clinic for infantile paralysis cases is now making an appeal for a fund to be used in carrying on the work ——Montefiore Home and Hospital announces that it has opened a ward for the treatment of children recovering from infantile paralysis——It is said that about one third of the cases reported to the health department daily are not true cases of infantile paralysis, these, of course, do not appear in the daily lists About two out of every 100 cases are diagnosed wrongly by the diagnosticians of the health department——One of the features in connection with the work of prevention of infantile paralysis has been the issuing each day of "daily hints" for publication in the daily papers by the bureau of public health education of the health department

PENNSYLVANIA

Personal—Dr Joseph K Weaver, Norristown, has been reappointed a member of the state board of prison inspectors ——Dr William S O'Neill Sherman, Pittsburgh, sailed from New York, July 8, for Liverpool to represent the United States Steel Corporation in the research work to be prosecuted by the Rockefeller Institute in the base and field hospitals of the allies

Infantile Paralysis Report—During the twenty-four hours ended 4 p m, August 26, twenty-one new cases of infantile paralysis were reported to the state health department from points in Pennsylvania outside of Philadelphia Since July 1, 674 cases of the disease have been reported to the state department The total number of deaths is 168——As a matter of precaution the board of health of Media has forbidden the appearance of the Chautauqua from September 14 to 20——The Pennsylvania State College trustees have decided to postpone the opening of the college until September 18

Pittsburgh Establishes Quarantine Against Poliomyelitis—Beginning at midnight on August 17, the Pennsylvania department of health established at Pittsburgh a quarantine against all trains from the west, north and south making their first stop in the state at this point All children under 16 bound for a Pennsylvania point not provided with health permits certifying that they were free from the disease and had not been exposed to it, will be turned back and deported beyond the state line Seven fourth-year men of the medical school of the University of Pittsburgh have been selected as special quarantine officers

Philadelphia

Personal—Dr Charles K Mills has been appointed consulting neurologist to the Philadelphia Hospital for Contagious Diseases——Dr Holmes Walker has been provisionally appointed an assistant medical inspector at a salary of $1,400

New Health Centers Opened—The twelve centers which the department of health and charities established at the beginning of the summer have served their communities so well that three new centers have just been opened, located at Front and Tasker, at 1136 North Second Street and at 3101 Grays Ferry Road, where from seven to ten nurses are in charge

Gift Toward Red Cross Hospital—A fund of $25 000 is being collected for the purchase of a base hospital for the Red Cross and a cheque for $10,000 has been given by Cyrus H K Curtis to start the movement The money for the hospital will be turned over to the Southeastern Chapter of the Red Cross and will be subject to the call of Dr Richard H Harte, the chairman This base hospital will consist of tents, cots and full equipment for a central hospital to which cases may be moved from time to time from field hospitals or be held in readiness of great public calamities

Jeanes Millions for University—Recommendation that a fund of more than $3,000,000 for the treatment of cancerous, nervous and disabling ailments be given to the University of Pennsylvania Hospital has been made by Dr Winford H Smith, superintendent of the Johns Hopkins Hospital, Baltimore, who was selected by the trustees of the fund, jointly the incorporated trustees of the Philadelphia Yearly Meeting of Friends and a body organized as the board of managers of the Jeanes Hospital, to come to Philadelphia and make a survey of its hospitals and medical work and give them his opinion as to where the fortune would work the greatest benefit The fund is the estate and its increment willed for the purpose by Anna J Jeanes, a noted Friend philanthropist, who died in 1908

Infantile Paralysis—One hundred and thirty-two cases of infantile paralysis were reported to the bureau of health during the week which ended August 26, an increase of twenty-six over the preceding week These cases are in widely scattered districts of the city——Instructions for the injection of immune serum, with orders to use it on every child suspected of having infantile paralysis, if the consent of parents can be obtained, were sent on August 26, by Dr

Andrew A Cairns, chief medical inspector, to the fifty-one physicians under him, together with the statement that the serum would be available at his office It will also be issued to physicians in general practice if they have paralysis patients under their care——*In just one week after the con*ference held at Dr Wilmer Krusen's office in city hall on the use of the Wynnefield branch of the Childrens' Hospital for the care of convalescent patients, it was in operation with enough money to maintain it for one month The Idlewild chapter of the Pennsylvania Women's Division for National Preparedness of the Red Cross at Media sent to this convalescent hospital 356 garments——Aiding in the effort to stop the spread of infantile paralysis, the Child Federation has issued a bulletin and posted it in 300 courts and alleys which warns mothers to call the doctor the minute baby seems the least bit ill——All public, private and parochial schools in this city and throughout the state will remain closed until September 18——Eleven deaths from infantile paralysis, the largest number on any day this summer, were reported to the health department on August 19 In the week ending at noon August 19 102 new cases were reported twenty more than in the preceding week This number makes a total of 280 cases and seventy-seven deaths The demand for health certificates is so great that a force of eighteen clerks is kept busy at the City Hall and it is estimated that 10 000 certificates were issued on August 19——Dr Samuel S Woody chief resident physician at the Philadelphia Hospital for Contagious Diseases, has reported to Dr Andrew A Cairns that the cases recently admitted were of increasingly virulent type——Dr Wilmer Krusen has requested the Philadelphia Free Library to prohibit children from reading in the library and its branches and has requested the Philadelphia Rapid Transit Company to take extra care in *cleaning its cars for the rest of the summer* Churches and Sunday schools will exclude children under 16 in accordance with the request of the health director, and a police order was issued on August 17 prohibiting all street carnivals——The board of managers of the Children's Hospital has offered its building at Wynnefield for a convalescents' hospital, planned by the Emergency Aid and Director Krusen

CANADA

Alberta Physicians to Meet—The annual meeting of the Alberta Medical Society will take place in Edmonton on September 21 and 22 The president is Dr Thomas H Whitelaw, Edmonton

Medical Society of Nova Scotia—The sixty-third annual meeting of the Medical Society of Nova Scotia was held at New Glasgow on July 5 Dr Evan Kennedy of New Glasgow was the president Only a business meeting was held, but Dr Alexander P Reid Middleton, read a paper on his reminiscences from the end of the fifties of the last century down to the present time Prof Fraser Harris was elected president for the ensuing year, and Dr James R Corston, Halifax, secretary-treasurer

Hospital News—Work on the old Toronto General Hospital which was being transformed into a military base hospital has been temporarily discontinued because the Ottawa military authorities require from the city of Toronto a two years lease after the war Lieut.-Col Thomas B Richardson the officer in command is applying to the board of control for the extension The hospital is to accommodate 1 040 beds but up to the present time has only about 500 patients Already the improvements have cost $30,000——The West Cliff (England) Canadian Eye and Ear Hospital at Folkstone is under command of Lieut.-Col J D Courtenay, Ottawa Lieut-Col Samuel H McKee C M G Montreal is second in command Major Alex B Osborne, Hamilton, Ont is in charge of the eye department, and Majors William J Brown, Lindsay, and Henri M DuHamel of the ear, nose and throat department Capt Percy G Bell Winnipeg is registrar——Lieut-Col Perry G Goldsmith, Toronto is on the staff of the Duchess of Connaught Canadian Red Cross Hospital, Taplow England——Erection of the new Kootenay Lake General Hospital, Nelson B C, is to be commenced at once——The Royal Victoria Jubilee Hospital, Victoria, B C requires a resident medical superintendent who must be a married man and familiar with Roentgen-ray therapy and photographic work The salary is to be $3 000 with free quarters——An assistant physician is urgently required for the Mount Sinai Sanatorium for Incipient Tuberculosis at Ste Agathe de Monts Que The salary offered for the first year is $500 A licensed graduate of the Jewish faith would be preferred

GENERAL

American Hospital Association to Meet—The American Hospital Association will hold its next annual meeting in Philadelphia, September 26 30

The Plattsburg Camps—Educational camps *for medical* men will be held at Plattsburg, N Y, August 24-September 6, September 8-September 21, and September 22-October 5, each camp continuing for two weeks The qualifications necessary for entering are the same as for the regular military training camps excepting that the applicant must hold the degree of Doctor of Medicine The instruction is relatively elementary and is designed to give the medical men the army point of view and a knowledge of medico-military methods About fifty physicians attended the first camp at Plattsburg

Red Cross Nursing Service—Under the efficient management of Miss Jane A Delano chairman of the National Committee on Nursing Service, a corps of more than 7,000 graduate nurses has been enrolled for Red Cross service This branch of the work has become so important that it was deemed advisable to secure a superintendent for this bureau and for this duty Miss Clara D Noyes, superintendent of the Bellevue Training School, New York, has been secured and will assume her new duties about October 1 There are already about 1 000 nurses ready for the base hospital units now in process of organization and similar groups of ten nurses each known as the emergency detachment of nurses, are being organized to meet possible service needs

Bequests and Donations—The following bequests and donations have been recently been announced

Mt Sinai Hospital New York a donation of $150 000 for the endowment of its department of abdominal surgery by Charles A Wimpfheimer

Hospital for Women and Children Boston to establish a free bed $5 000 Baker s Free Hospital for Women Boston to establish a free bed $5 000 Boston Children s Hospital $2 000 and Children s Island Sanitarium Salem Harbor $1 000 by the will of Mrs R B Warren Boston

Pennsylvania Hospital Philadelphia Protestant Episcopal Hospital Presbyterian Hospital Polyclinic Hospital and Samaritan Hospital each $10 000 Philadelphia Home for Incurables Jewish Hospital Association and Medical Chirurgical Hospital each $5 000 by the will of Hall Engles The bequests to the Pennsylvania and Presbyterian hospitals are to endow two free beds in each institution in memory of Mr Engles mother and the bequest to the Protestant Episcopal Hospital is to endow two free beds in memory of the testator

St Mary s Hospital, Philadelphia $5 000 to endow a bed by the will of George W Nevil

Servants and Relief of Incurable Hospital and Skin and Cancer Hospital New York each $5 000 by the will of Mr Miner Veitch

Modification of Patent Laws—At its last meeting, the Pennsylvania Pharmaceutical Association adopted a resolution calling on Congress '*to strongly support the* pending Tariff Bill affording protection to American industries" Also another resolution was adopted, asking Congress to modify the present patent laws "discontinuing the patenting of products but recognizing only applications for patents on processes" The following preambles preceded the adoption of the resolutions

WHEREAS The American public is obliged to pay extravagantly high and unjustly extortionate prices for the synthetic drugs and medicines they are obliged to buy from foreign holders of patents on medicinal products and

WHEREAS The United States patent laws in granting product patents, instead of process patents to foreign manufacturers are hindering instead of promoting science and useful arts for which they are instituted and

WHEREAS The synthetic drug industry is primarily and basically dependent upon the dye making industry and *as the dye stuff industry* cannot be successfully carried on without ample tariff protection and the liberation of the infant American organic chemical industry from the bondage of American patent laws which favor *priority and* deter invention and progress and which accord American protection to foreigners which their native countries deny them and

WHEREAS The *present* United States patent laws favor the creation of monopolies in this country by the citizens of Germany France Austria Hungary Italy Japan and the Argentine Republic which is denied the citizens of those countries by their own laws and

WHEREAS A patent on products creates a monopoly not only on the product itself but on all subsequent improvements in process for the *making of the same thereby destroying* the stimulus for improvements and discovery through research

Medical Treatment at Government Expense for Injured Federal Employees, Compensation for Disablement—An act to provide compensation for employees of the national government injured while in the performance of their duties, which has passed both houses of Congress and will become a law *as soon as the conference* committee to which it has been referred has adjusted certain minor details will increase the demand by the United States government for the services of physicians throughout the entire country For all injured civil employees of the United States, numbering approximately 400 000 it provides medical, surgical, and hospital services and supplies at government expense.

Medical, surgical, and hospital services and supplies are to be furnished by the United States to any civil employee injured in the line of duty, immediately after the injury and for a reasonable period thereafter, whether disability has or has not resulted, unless the employee refuses to accept them United States medical officers and hospitals are to furnish such services in so far as may be practicable, otherwise they are to be furnished by private physicians and hospitals designated or approved by the United States Employee's Compensation Commission, created to carry the law in effect Private physicians and hospitals are to be paid for such services from the employee's compensation fund, appropriated by Congress If necessary in order to obtain proper medical, surgical and hospital treatment, the injured employee may be furnished transportation at government expense to some place iere such treatment can be obtained

he furnishing of treatment to injured employees is, howi, merely a part of the larger scheme of compensation for disablement and death in the discharge of duty Compensation is already provided by law for approximately 100,000 civil employees of the government who are engaged in specially hazardous employments The act that is about to replace the older statute extends the same benefits to the remaining 300,000 employees, whose work is not extrahazardous Compensation is to be paid for the disability or the death of the employee resulting from personal injury while in the performance of duty, provided the injury was not caused by his willful misconduct, deliberate intent, or intoxication

For total disability, compensation is not to exceed two thirds of the total compensation of the employee If the disability be but partial, compensation shall not exceed two thirds of the difference between the pay of the employee before the injury and his wage-earning capacity after it In no case, however, is the compensation to exceed $66 67 a month An elaborate scale is laid down for the allotment of benefits to dependent relatives and kin if the employee dies, and provision is made for the payment of funeral expenses by the government, in the discretion of the commission Payments are to be made monthly and are to continue indefinitely, during the disability of the employee or the dependency of the beneficiaries, but authority is given for the payment in certain cases of a lump sum in commutation of instalment payments

Every claim for compensation, except in case of death, must be accompanied by a certificate from the employee's physician stating the nature of the injury and the nature and probable extent of the disability The employee must submit to all necessary examinations by a medical officer of the United States, or by a physician designated or approved by the commission, but the employee may have present any duly qualified physician selected and paid by him In case of disagreement between two such physicians, the commission is to appoint a third to make the examination

For the purpose of carrying the law into effect, a commission is created, to be known as the United States Employees' Compensation Commission, to consist of three members appointed by the president, by and with the consent of the Senate, each with a compensation of $4,000 a year The principal office of the commission is to be in Washington, D C

FOREIGN NEWS

Trolley Car Ambulance—A city in Brazil is said to use a trolley car ambulance for the transportation of its patients to and from a hospital in the suburbs

Infantile Paralysis in Cuba—The *Revista de Medicina y Cirugia* of Havana states that cases of poliomyelitis have appeared in that city and at Guines and Vueltas, but that they have all been isolated cases and there has been no mortality

Typhus Stamped Out in Madrid Province—Typhus has been epidemic in and around Madrid recently Isolation barracks were installed on the grounds of one hospital and the epidemic was promptly arrested Our Madrid exchange says that the mortality was only 10 per cent, notwithstanding the large number of cases

The Alvarenga Prize in Brazil—The Alvarenga prize this year in Brazil was awarded to G Riedel, chief of the biologic chemistry service at the Hospicio Nacional and instructor at the University of Rio His work described extensive personal research on the protective ferments, and a process for determining the specific ferments by superficial tension This eliminates the sources of error with the Abderhalden dialysis technic

Durante's Jubilee—The fiftieth anniversary of the entrance into practice of Prof F Durante of the chair of surgery at the University of Rome occurred recently, but he said that on account of the way Italy is making history just now he did not wish the proposed celebration of the occasion With Baccelli he founded the *Policlinico* twenty-three years ago He is known as a surgeon far and wide

Hospital Ship for Sulu Archipelago—The National Health Board of the Rockefeller Foundation has entered into a cooperative agreement with the Philippine government for the equipment of a hospital ship to go from island to island in the Archipelago, meeting people at shipping points, bringing medical service to the afflicted, training midwives, giving general instructions to the people and guiding and stimulating them to self health The agreement with the government is for the maintainance of this ship for five years At the end of this period it is hoped that the ship will have demonstrated its usefulness and that the government will continue the work

Deaths in the Profession Abroad—V Llorente y Matos, a leading physician at Madrid, member of the national board of health and founder of the Institute of Microbiology and Serotherapy, aged 59——J Broeckaert, rhinologist and laryngologist at Ghent, aged 49 He had made a special study of the innervation of the throat and published several studies on the recurrent nerve and on paraffin prosthesis, the technic for which he much improved, especially for treatment of ozena——W Lindt, instructor in laryngology and otology at the University of Bern, aged 56——B P Sormani, privat-docent of serology at the University of Amsterdam, originator of the "syphilis index" (an aid to the estimation of the state of the infection in syphilis, mentioned in The Journal, Aug 23, 1913, p 632), aged 35 A recent article on the specific limit of resistance of the red corpuscles as a factor in the outcome of the deviation of complement test was summarized in The Journal, May 8, 1915, p 1624

Sick and Wounded Interned in Switzerland—While the war rages around it on all sides, Switzerland is able to offer sick and wounded prisoners a haven of peace Its hotels and sanatoriums have been placed at the disposal of the belligerent nations to receive and care for their sick and wounded prisoners at low rates, ranging from a little over $1 to $1 60 a day Clothes are supplied by the country of the interned, and they are policed by some of their own members Postal service is free to them in Switzerland and for mail leaving the country Belgium, France, Germany and Great Britain have taken advantage of Switzerland's offer to care for sick and wounded prisoners and there are said to be now a total of 13,417 thus interned in Switzerland, including 2,948 German soldiers, 452 British and 8,941 French The relations between the interned and the native populace are kept within narrow bounds The man's family can come to reside in the town with him, but strict surveillance is kept over them and the interned While allowed a certain amount of liberty, yet they are compelled to stay within a given area The contracting powers have agreed to return to Switzerland any of the interned who escape from the country The only disabilities that bar are chronic alcoholism, mental troubles requiring institutional care and contagious diseases during their acute transmissible stage

WAR NOTES

Drug Shipment to Orient Permitted—A letter from the French ambassador, received by Oscar W Strauss, New York, August 23, brought advice that the French government would permit entry of a shipment of drugs and medical supplies for the Jewish hospital at Jaffa and Jerusalem, valued at $18,000

OUR TROOPS ON THE BORDER

Red Cross Nurses for Duty on the Border—In response to a request from the surgeon-general of the army to furnish the names of 100 Red Cross nurses willing to be assigned to active duty on the Mexican border, Miss Jane A Delano, chairman of the National Committee of Red Cross Nurses Service, has sent fifty-five nurses to the Southwestern states to assist the Army Nursing Corps in caring for the sick and wounded of the armed forces of the United States on the Southern frontier Of these nurses ten were sent to Eagle Pass, thirty to San Antonio, three to Brownsville, six to Douglas, Ariz, two to El Paso and four to Laredo By special authorization of the surgeon-general each of the twenty-five Red Cross base hospital units has been requested to designate from its Red Cross personnel two nurses for service on the border

LONDON LETTER

London Aug 14, 1916

The War

ARMY MEDICAL ORGANIZATION

The thoroughness of the Germans in organizing for this war during a whole generation is a commonplace. But when the history of the war comes to be written, the manner in which this country improvised and in a short time organized an army ten times as great as had ever been maintained by it for war, on a scale which had never been even contemplated, will also be considered remarkable. In the organization of the army, medical arrangements more quickly than any other have attained a high degree of efficiency. Such indeed probably never have been equaled, with the possible exception of the Japanese army. In the *British Journal of Surgery* Sir Alfred Keogh, the director general of the medical corps, has described how the work of expansion was performed. This was rendered possible by certain preparations which had been made in peace for the service of civilian physicians in the army. Owing to the magnitude of the war, the regular officers of the medical corps had to devote all their energies to administration while the technical work of the care of the sick and wounded was left to specially selected experts. Consulting surgeons were appointed by whom all subsequent surgical developments were determined. They set the scope and standard of practical work and scientific investigation. They determined whether or not the means at the disposal of the hospital surgeons were adequate. They supervised the operations and approved of the operators, so that on them depended whether or not all that was best in British surgery was available for the soldier. Through these consultants the maximum of surgical efficiency was attained. They and they only could insure a high standard of clinical and scientific work. The staffs of the hospitals in this campaign were drawn from numerous schools. Differences of practice and of opinion consequently existed; discussions were frequent, and authoritative pronouncements were necessary. Free play was given to the imagination of many who would have made the future better than the present. New branches of work were organized to meet special conditions, and there was a division of labor. Old problems of military surgery were investigated in the light of the newer knowledge. The Medical Research Committee (appointed under the insurance act) gave valuable aid in establishing laboratories at home and abroad. Never before had such organized researches been carried on during war. Whenever a difficulty arose whether connected with epidemics or some surgical problem, it was possible to fall back on the laboratory workers for guidance, and therefore none of the new administrative measures were simply experiments; they were the outcome of scientific suggestions. As the war went on, it was possible more and more completely to classify the wounded into groups each demanding special experts. Orthopedics is perhaps the most important example. Great work has been done for the wounded soldier in overcoming his disabilities in the special hospitals formed under the supreme control of our greatest orthopedic surgeon Lieut.-Col. Robert Jones. Sir Alfred Keogh is fully convinced "that the more the organization of hospitals into special departments is pursued the greater will be the degree of efficiency reached. Experience has shown and continues to show that in such departments research is encouraged, and knowledge acquired and diffused more readily than could otherwise have been the case. One cannot avoid an uncomfortable feeling that if hospitals in civil life had been organized on such a plan a higher efficiency would have been manifest at the outset."

Drastic Act for the Control of Venereal Disease in Western Australia

In Western Australia an act has been passed for the free diagnosis and treatment of venereal diseases somewhat on the lines of the regulations recently issued in this country and described in a previous letter. But the Australian act goes much further and contains compulsory and penal provisions which would be difficult to pass in the mother country, where the "rights" of the individual are more respected than in her somewhat socialistic colonies. No person other than a physician or person acting under the direct instructions of a physician shall attend on or prescribe for any person suffering from any venereal disease for the purpose of curing, alleviating or treating such disease, under a penalty of $250 or six months' hard labor. Every person suffering from any venereal disease shall, within three days of his becoming aware or suspecting that he is suffering, consult a physician and place himself under treatment by such physician under a penalty of $100. He must keep under treatment until he receives a certificate of cure, under a penalty of $100. If he changes his physician he must declare the name and address of his last previous adviser, and the new physician shall notify such previous adviser. The penalty for the infraction of this provision is $25. Every physician must report all cases of venereal disease in prescribed form to the commissioner of public health, stating age and sex of patient, but not name and address, under a penalty of $25. If a patient fails to attend his physician for six weeks the physician must notify the commissioner giving name and address of patient, under a penalty of $25. The physician shall give the patient written notice of the danger of the disease, particularly warning against marriage until cured, under a penalty of $25. In case of a person under the age of 16 years being infected, the parents or guardians are to exercise their authority to secure observance of the act, under a penalty of $50. They must report to the commissioner failure of the person to carry out the law, under a penalty of $50.

The most drastic provision of the act relates to compulsory examination and treatment. When the commissioner has received a signed statement in which shall be set forth the full name and address of the informant, stating that any person is suffering from venereal disease and whenever the commissioner has reason to believe that such person is suffering from such disease he may give notice, in writing, to such person requiring him to consult a physician or produce a certificate that such person is or is not suffering from the disease. If the commissioner is not satisfied with such certificate he may authorize any health officer or any two physicians to examine such person to ascertain whether or not such person is suffering from the disease, and the said officer or physicians shall have power to examine the person accordingly, and shall report the result of his or their examination to the commissioner in writing. In case of a female one physician shall, if the person so desire, be a female physician if one be available. If the report states that the person is suffering from the disease, and the commissioner judges there is risk of infecting others, he may issue a warrant for the arrest of the person and detention in hospital for two weeks, where any examination necessary may be made. If further detention is deemed necessary, the governor, on the recommendation of the commissioner, may issue a warrant for the arrest and detention of the person for such time as he thinks fit and for treatment and examination. The detained person has the right to apply to the courts for an independent examination by two physicians, one named on behalf of the patient, who shall certify his state. Such appeal may not be repeated within six months of a previous appeal. The section applies to persons already in prison, and the hospital detention is to count as part of their term of imprisonment. The warrants issued authorize the use of force to carry them into effect, and the police "shall on sight of the warrant" render all necessary aid under a penalty of $100. No person shall knowingly infect any other person with venereal disease or knowingly do or suffer any act likely to lead to the infection of any other person with such a disease under a penalty of $250 or six months' hard labor. The commissioner is to provide, free of charge, all laboratory investigation necessary to accurate scientific diagnosis to all physicians. Powers are given to subsidize hospitals for the treatment of the infected, and at such hospitals the treatment shall be free. Every physician in receipt of any salary from the state shall examine and treat free of charge any infected person who applies to him, and the commissioner shall reimburse him under a penalty of $25. All proceedings under these sections of the act in any court shall be *in camera* and it shall be unlawful to publish in any newspaper a report of any such proceedings. The penalty for the first offense is $500 or six months' imprisonment, and for the second offense $2,500 or twelve months' imprisonment.

Advertisements of medicines or appliances for venereal diseases, impotence, or female irregularities are prohibited. No circulars, books or printed notices may be circulated by hand exhibition, newspaper, or by the post. Finally, the government has issued a booklet on venereal diseases so that ignorance cannot be pleaded as an excuse. The manner in which they are contracted, the symptoms, and the precautions to be taken by infected persons are described.

PARIS LETTER

Paris, Aug 3, 1916

The War

THE TREATMENT OF WAR WOUNDS

At the Reunion medico-chirurgicale de la V-e armee, Dr Leroy gave an account of the good results he has had in the treatment of war wounds by Lemaitre's method thorough exploration of the track of the projectile, removal of all foreign bodies, excision of contused lacerated tissues, painting of the surfaces of the wound with tincture of iodin, primitive and secondary suture The earlier the treatment the better the results This method has the advantage of suppressing pus and fever and rendering amputation and suppurative arthritis rare, yet assuring to the wound a safe evolution without fear of insidious, late, gaseous gangrene, or of secondary hemorrhage, and above all, without production of those fistulas in the bone or muscle which are so refractory, and of those obstinate false joints which are almost invariably the consequence of operative abstention at the outset This practice, which seems at first sight too bold and too free, is in reality prudent and eminently conservative, 298 wounded were treated according to this method, and 175 patients with wounds of the soft parts have all been discharged The projectiles have been removed without suppuration and without fever Many of the wounds cicatrized either by secondary or primary union (twenty-six cases of the latter) Primary suture is successful whenever cleaning out the wound is completely effected The appearance of fever or of pus is a proof of defective operative technic The results of this immediate disinfection are of a still more brilliant demonstrative value in joint wounds Of eighteen articular wounds, thirteen have been cured with restitutio ad integrum of the joint (six knee joints out of seven cases observed), five were obliged to submit to total or partial resection because of the extent of the open lesions There was no death and no amputation Twenty-one cases of various fractures have also been treated, two amputations were necessary on account of the extent of the lesion, all the others have either been discharged or are firmly united or nearly so Free excision of all muscular tissue which threatens to slough in gaseous gangrene has given results so satisfactory as to be astonishing Of thirty-five cases of gaseous gangrene, Dr Leroy lost only five In two of these, the intervention had not been sufficiently free These muscular resections have sometimes attained considerable proportions The following up of the track has sometimes led to discovery of unsuspected lesions of important organs Eight times, these were in the great vessels, three times in the vertebral canal (three cured without injury to spinal cord), one in the peritoneal cavity (transthoracic laparotomy, cured) Speaking generally, the mortality in ambulance cases has diminished by more than one half since application of this procedure.

PERIARTICULAR ABSCESSES COMPLICATING SUPPURATIVE ARTHRITIS OF THE KNEE

Dr Chaput, hospital surgeon, has drawn the attention of the Societe de chirurgie de Paris to the gravity of periarticular abscesses originating in the retrocondylian synovial membrane and which proves fatal to the majority of patients suffering from suppurative arthritis of the knee These abscesses result from perforation of the synovial membrane Some are produced by direct propagation of the infection Others develop in the lymphatics of the space behind the knees, but this is rare Others again form in the thickness of the vastus internus a little above the articulation The diagnosis of periarticular abscesses is usually very difficult, and as a rule one does not recognize them until the last possible moment, at which time it is generally too late to cure the patient It is possible, however, to make a much earlier diagnosis by observing the following signs 1 Considerable edema of the leg and of the foot in the course of an arthritis of the knee should always make one suspect a posterior periarticular abscess 2 When pressure on the thigh or on the calf provokes an increase in the flow of pus from the articular incisions, there exists a periarticular abscess 3 This condition may also be suspected in every arthritis of the knee which, being well drained, continues to afford abundant discharge of pus accompanied by persistent fever In the treatment of these abscesses, the only possibility of success is a very early and even preventive intervention The articulation must be sufficiently drained, and all foreign bodies and bony splinters removed If the fever does not pass away in forty-eight hours, one may suspect a periarticular abscess, and one should excise at the points of election according to its position These incisions very often evacuate the pus, or, if the abscess is not yet formed, they will prevent it

PRODUCT OF THE SALE OF RED CROSS STAMPS

Since the commencement of the war, many persons have been in the habit of employing for their correspondence the Red Cross stamps These stamps are of numerous kinds, each of the societies constituting the French Red Cross having published a series, but the most used are those which were issued by the Ministry of Posts and Telegraphs and serving for the franking of correspondence up to 10 centimes (practically 2 cents) 5 centimes of which goes to the Red Cross (The Journal, Oct 31, 1914, p 1591, Jan 2, 1915, p 68, and Jan 22, 1916, p 290) Up to the present, the amount collected by the Red Cross in this way is 1,508,000 francs ($304,940) The organization has thus been able to increase by 350,000 the number of hospital days in its formations at the front.

Against Alcoholism

A delegation at the Ligue nationale contre l'alcoolisme, presided over by Professor Debove, has just drawn the attention of the ministry of public instruction to the importance of antialcoholism teaching in the schools and the desirability of issuing a circular drawing the attention of the teaching staff to the importance of the matter The ministry has promised to send out such a circular particularly to the primary schools The same delegate submitted to the ministry of the marine a complete program for antialcoholism propaganda among the personnel of the fleet and the workmen of the dockyard The Ligue nationale contre l'alcoolisme intends also to undertake a campaign in the country in favor of total prohibition On the other hand, the hygiene commission of the Chamber of Deputies, believing that the project adopted by parliament to suppress the privileges of the small distiller and to impose a surtax on alcohol is insufficient, has charged its reporter, Mr Schmidt, to prepare a bill establishing the monopoly of the wholesale and retail sale of alcohol This proposition is inspired by the example of Russia, where there is government monopoly of the manufacture of alcohol, and at the commencement of the war its sale throughout the empire was prohibited

Eyeball Compressor for Investigation of Oculocardiac Reflex

It is known that compression of the eyeball causes a transitory modification of the cardiac rhythm which is known as the oculocardiac reflex, described by Aschner in 1908 In the normal condition, this reflex causes a slowing of the pulse (of from 4 to 10 beats to a minute), in a great number of pathologic conditions it is modified Either the slowing is increased or the reflex is absent or there is an acceleration of the pulse To provoke this reflex, it is usually necessary to have a recourse to an assistant Digital compression varies necessarily with the assistant, it is not always uniform in the same person, it is not measurable, it is not aseptic, and it requires the presence of a third party Dr Roubinovitch of the hospital at Bicetre has devised an apparatus which permits a regular, uniform, measurable, aseptic, mechanical compression of the eyeball It can be employed without calling for the aid of a third person and without danger of sepsis

A Strange Quack

Pierre Teillon, aged 60 years, formerly a wine grower, appeared recently before the courts accused of the illegal practice of medicine It appears that he was in the habit of treating all sorts of cases by means of sulphuric acid, and that he had caused the death of one unfortunate woman In answer to questions of the president, the accused gave the following reply

"I had noticed that molds which grow in the inside of casks were completely destroyed by sulphuric acid On the other hand, I had read in a dictionary that Pasteur recommends the application of sulphuric acid to the bites of rabid animals From this I concluded that sulphuric acid is a product which, applied to the human body, was capable of producing cures by destroying the noxious principles of the blood which are different sorts of molds Acting on my idea, I made some experiments, first of all on my horse which was at that time ill, later on myself, and then on my sister We were all cured Since that time, in the interests of humanity, I have set myself to treat with sulphuric acid all those who come to me I wished my fellow men to profit from my discovery"

The tribunal recompensed the excellent intention of Pierre Teillon by condemning him to three months in prison

Marriages

George Francis Bicknell, M D Indiana Harbor, Ind to Miss Pansy Miller of Gary, Ind, at Valparaiso, Ind, August 23

Asst Surg Carl Michel, U S P H S to Miss Mary Eloise Field of Casa Rosa, San Juan, Porto Rico, August 12

Audley Owenton Sanders, M D, Lindsay, Calif to Miss Inga Hansen, of Hanford, Calif, at Los Angeles recently

Carlos Alcibiades de la Puente Baldion, M D, to Mrs Mary A Bennett, both of Philadelphia August 16

Daniel Phillip Kincaid M D, to Miss Bessie Loraine Sowers, both of Memphis Tenn, August 16

Ernest Charles Asbury, M D to Miss Nellie Smith, both of St Louis, at Detroit, recently

Enoch George Klimss, M D, to Miss Estella Brozaitas, both of Philadelphia August 17

Simeon Alfred Jacobs, M D New York, to Miss Lena Siegel of Baltimore, August 20

John C. Stevens, M D to Miss Mayanna Mayer, both of Harrisburg Pa, August 15

Moses A Jones, M D, to Miss Irene Mershon, both of Walter, Okla, recently

Deaths

Commander Edward Kershner, Medical Inspector, U S Navy (retired), Hagerstown Md, New York University, New York, 1861, aged 77, a Fellow of the American Medical Association, emeritus professor of naval, military and state hygiene in the New York Post-Graduate Medical School, a veteran of the Civil War, in which he was on duty on the *U S S Cumberland* when she was sunk by the *Merrimac* in Hampton Roads, fleet surgeon of the Asiatic Station for several years, inspector of the Infant's Hospital, Randall's, N Y, and of the Alms House, Blackwell's Island, who was retired from the navy, April 2, 1902, after seventeen years and seven months' sea service, and twelve years and eight months' shore or other duty, died suddenly in Hagerstown, August 20, from cerebral hemorrhage

William Riley Franklin, M D, Rockford, Ill, Chicago Homeopathic Medical College 1883, aged 57, a Fellow of the American Medical Association, a member of the consulting staff of the Rockford City Hospital, local surgeon of the Burlington System and the Rockford Interurban Railway, was drowned, while swimming at Michillinda, Mich, August 19

Frederick D Smith, M D, Coopersville Mich, Philadelphia University of Medicine and Surgery, 1870, aged 71, formerly a Fellow of the American Medical Association, a member of the Michigan State Medical Society, for forty-three years a practitioner of Coopersville and president of the People's Savings Bank, died at his home, August 18

George Whitehouse Ryan, M D, Boston, Tufts Medical College, Boston, 1899, aged 44, a graduate of the U S Naval Academy and a veteran of the Spanish-American War, for several years surgeon-in-chief of the Brockton (Mass) Relief Hospital and of the Boston Emergency Hospital, died in the Commonwealth Hospital, Boston, August 15

John Ashby Rosenberger, M D, Del Rey, Calif, Jefferson Medical College 1894 aged 44, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of California, was killed by the overturning of his automobile near Fresno Calif, August 15

Henry H Roedel, M D, Lebanon Valley Pa, University of Pennsylvania Philadelphia, 1857, aged 84, for more than half a century a practitioner of Lebanon, a member of the Medical Society of the State of Pennsylvania, died at his home, about August 18, from senile debility

Thomas Hall Emery, M D, Monkton, Md, University of Maryland Baltimore, 1896, aged 43, a member of the Medical and Chirurgical Faculty of Maryland, sanitary officer of the tenth district of Baltimore County, died at Saranac Lake N Y August 15 from tuberculosis

John Buchanan Murrey, M D, Nashville, Tenn, Vanderbilt University Nashville 1877, aged 67, for more than twenty years secretary for the Nashville Board of Underwriters, and for a long time a practitioner and druggist of Nashville, died at his home, August 16

Herschel DeLos Baker, M D, Springfield, Mo, University of Michigan, Ann Arbor, 1883, aged 64, a member of the Missouri State Medical Association and a specialist on diseases of the eye, ear, nose and throat, died at his home, August 14 from endocarditis

Silas W Fowler, M D, Delaware, Ohio, Jefferson Medical College, 1871, aged 69, formerly a Fellow of the American Medical Association author of a biography of the physicians of Delaware County, Ohio, died at his home, August 13, from pneumonia

John S Wallace, M D, Brunswick, Mo, Bellevue Hospital Medical College 1873, aged 67, a Fellow of the American Medical Association, a member of the state senate, died suddenly, August 17, from heart disease, while on his way to make a professional call

Joseph Leo Milton, M D, Oakland Calif, University of California Oakland 1891, aged 46, a Fellow of the American Medical Association, professor of orthopedic surgery in the Oakland College of Medicine and Surgery, died at his home, August 19

James H Rose, *M D, Harrisburg, Ill, Medical College of* Evansville Ind, 1878, aged 68, a member of the Illinois State Medical Society, and for thirty years a practitioner of Harrisburg, died at his home, August 17, from heart disease

Josiah Washington Hoff, Ann Arbor, Mich, a practitioner since 1844 aged 93, formerly a Fellow of the American Medical Association, a member of the Ohio State Medical Association for forty-five years, died at his home, July 23

William Jefferson Rowe, M D, Buford, Ga, Medical College of Georgia, Augusta 1887, aged 60, formerly a member of the Medical Association of Georgia, died at the home of his daughter in Flowery Branch, Ga, August 12

Elijah C Troutt, M D, Birds, Ill, St Louis College of Physicians and Surgeons, 1907, aged 31, formerly a Fellow of the American Medical Association, died at his home, August 11, from progressive muscular atrophy

Oliver Jay Ruth, M D, Colchester, Ill, Keokuk (Iowa) Medical College 1891, aged 49, formerly a member of the Illinois State Medical Society, died in Winterset, Iowa, August 19, from intestinal obstruction

Leander W Burt, M D, Lancaster Calif, University of Southern California, Los Angeles, 1905, aged 33, director of the Lancaster Chamber of Commerce, died at his home, July 18, from ptomain poisoning

John Wesley Carver, M D, East Peru, Iowa, Keokuk (Iowa) Medical College, 1906, aged 36, a member of the Iowa State Medical Society, a member of the town council, died at his home, July 31

Wilbur Lee Pepper, M D., Philadelphia, Jefferson Medical College 1892, aged 40, a Fellow of the American Medical Association, died at his father's summer home, Rehoboth Beach, Del, August 13

Marvin Debrill Parham, M D, Church Road, Va, Medical College of Virginia Richmond, 1860, aged 79, a member of the Medical Society of Virginia, died in the Petersburg (Va) Hospital August 16

Edward E Berry, M D, Plattville, Wis, aged 87, Rush Medical College, 1866, surgeon of the Thirty-Third Wisconsin Volunteer Infantry during the Civil War, died at his home, August 9

John H Roebuck, M D, Bethlehem Pa, University of Pennsylvania Philadelphia, 1865, aged 76, a member of the Medical Society of the State of Pennsylvania, died at his home, August 17

Charles Milton Hanna, M D, Preston Ohio, Kentucky School of Medicine Louisville Ky 1898 aged 43, died at his home, August 16 from cerebral hemorrhage.

Clarence James Lockhart, M D, Freedom Pa, Cleveland-Pulte Medical College Cleveland 1912, aged 28, was shot and killed by a patient at Freedom, August 20

Dwight Snellen Babbitt, M D, Defiance, Ohio, Eclectic Medical Institute Cincinnati, 1869, aged 74, a veteran of the Civil War, died at his home August 13

E Forest Harbert, M D, Wyatt, W Va, College of Physicians and Surgeons, Baltimore, 1913, aged 32, died at his home recently from tuberculosis

Elias Selig Feuerstein, M D, Brooklyn, University of Vienna Austria 1887, aged 55, died at his home, August 15, from a nervous breakdown

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE HYPOPHOSPHITE FALLACY

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized its publication W A Puckner, Secretary

The introduction of hypophosphites into medicine was due to an erroneous and now discarded theory as to the cause of tuberculosis of which one Dr J F Churchill of London, and later of Paris, was the promulgator and propagandist[1] This theory was that the so-called "tuberculous diathesis" was due to a deficiency of phosphorus in the blood Believing that the hypophosphites, while nontoxic, were capable of further oxidation in the organism, Churchill recommended them as the best means of supplying the supposedly lacking phosphorus It is now known that tuberculosis is not due to a deficiency of phosphorus Of more importance is the fact, now known, that *little phosphorus, if any, is assimilated from the hypophosphites—far less than from phosphorus compounds of ordinary food*[2] There is no justification for giving hypophosphites for the sake of their phosphorus content For various reasons, however—partly from force of habit and partly because of the power of advertising—many physicians still prescribe hypophosphite preparations, and consequently, they are still included in the Pharmacopeia and in textbooks on materia medica and therapeutics They are put out in the form of "specialties" and of proprietary preparations, and are lauded extravagantly by the manufacturers of the latter

Although the overwhelming weight of evidence was against the probability that the hypophosphite preparations are of value as therapeutic agents, the Council thought it well to investigate the subject Dr W McKim Marriott of Baltimore was therefore requested to review the evidence for and against the therapeutic usefulness of the hypophosphites and to conduct such experiments as seemed necessary His report has already appeared in The Journal[3]

Dr Marriott found that nine observers (Paquelin and Joly, Vermeulen, Boddaert, Massol and Gamel, Panzer, Delami and Berg), who endeavored to test the alleged utilization of the hypophosphites in the organism, reported that there is complete, or practically complete, elimination of hypophosphites in the urine, with little or no effect on the body Only one experimenter (Patta) claimed that a considerable amount of ingested hypophosphite was retained in the body, however, he used a method now known to be inaccurate and made obvious errors in calculation, so that his conclusions are unwarranted

Since the evidence was even to this extent contradictory, Marriott performed a series of experiments The methods of this study and details of results are described in his paper, in which he also discusses the experiments of some other observers Marriott writes

"None of the subjects of the experiment [Marriott's] experienced any effect whatsoever from the administration of the drug Almost all of the ingested hypophosphite is promptly eliminated unchanged

"These experiments [Forbes'] demonstrate conclusively that the hypophosphites possess no specific value as a source of phosphorus for the body This is not to be wondered at in view of the fact that 85 per cent of the phosphorus ingested in the form of hypophosphite is excreted unchanged, and there *is no* proof that even the remaining 15 per cent is available to the organism It is doubtful if there are *any* conditions in which the body suffers from lack of phosphorus Even should such conditions exist, phosphorus, in the form that it occurs in the ordinary foods, or as phosphates, is more efficient in supplying the deficit than hypophosphites that must be oxidized before utilization and which are only about 15 per cent oxidized if at all For example, half a glass of milk contains more available phosphorus than three large doses of hypophosphites of 15 grains each, as great a dosage as is usually given

"What, then, is the therapeutic value of hypophosphites? There is no reliable evidence that they exert a physiologic effect, *it has not been demonstrated that they influence any pathologic process, they are not 'foods' If they are of any use, that use has never been discovered*"

In view of the foregoing, it seemed to the Council advisable to examine the claims under which a few of the proprietary hypophosphite preparations are marketed The following are representative

FELLOWS' SYRUP OF HYPOPHOSPHITES

No very exact information concerning the composition is furnished by the manufacturers (Fellows Medical Mfg Co, New York) *They say that the product*

> " *contains the chemically pure* hypophosphites of iron, quinin, strychnin, calcium, manganese and potassium, agreeably blended in the form of a bland, stable syrup with a slightly alkaline reaction
>
> 'Each fluid drachm contains the equivalent of 1 64th *of a grain of* pure strychnin "

The Fellows' Hypophosphites advertising furnishes something like a barometer of the popular status of hypophosphites In one circular (undated, but, from certain references contained in it, presumably issued ten or fifteen years ago) we read

> "*It is an indubitable fact that the hypophosphites have earned the* distinction of having their therapeutic value more completely established than have any other remedial agents it is only by accepting the current view, which was originally advanced by Mr Fellows, that we can satisfactorily account for the incontestable fact that the hypo phosphites *are of supreme importance in the treatment* of a very extensive variety of affections the hypophosphites increase the consumption of oxygen and the elimination of carbon dioxide In this manner, they stimulate nutrition and promote constructive metamorphosis It is now universally conceded that the widespread utility of the *hypophosphites is due to the fact that they substantially* improve metabolic processes, thus increasing the disease resisting capacity of all the tissues"

The circular, continuing, emphasizes the "incomparable phosphorus-contributing properties" of Fellows' Syrup, its "extraordinary reconstructive properties" and "the magnificent results which invariably attend its *employment in the treatment of anemia, chronic bronchitis, chlorosis, neurasthenia*, mollities ossium, delayed union of fractures, rickets, convalescence," etc

A circular bearing the copyright date 1914, on the other hand, admits that

> The theories for the favorable action of Fellows Syrup of Hypophosphites have undergone several *changes* "

The same circular further maintains, however, that

> ' the fact has never been challenged that in *Fellows Syrup of* Hypophosphites we have one of the most efficient most complete, most all round tonics and roborants in the materia medica"

No attempt is made to base this assertion on the therapeutic action of the constituents In other words, the old theory, which formed the basis for the popularity of Fellows' Syrup, has been thrown overboard, but no substitute is deemed necessary, the momentum already acquired is apparently regarded as sufficient to insure its continued sale

Fellows' Syrup of Hypophosphites is a semisecret, unscientific preparation—an affront to sound therapy—exploited by means of extravagant and misleading statements

SYRUPUS ROBORANS (SYRUP HYPOPHOSPHITES COMP WITH QUININ, STRYCHNIN AND MANGANESE)

Little information concerning this preparation seems to be furnished at present by the manufacturers, Arthur Peter & Co, Louisville, Ky According to an old circular, it contains, in each fluidounce,

	Grains
"Hypophos Potass	1½
Hypophos Manganese	1
Hypophos Lime	1
Hypophos Iron	1½
Hypophos Quinin	9/10
Hypophos Strychnin	1/16

"1/128 grain Strychnia to Teaspoonful"

---

[1] Churchill, J F De la cause immediate et du traitement specifique de la phthisie pulmonaire et des maladies tuberculeuses, Paris, 1858

[2] The Hypophosphite Fallacy, The Journal, April 25, 1914, p 1346

[3] Marriott, W McKim The Therapeutic Value of the Hypophosphites, The Journal A M A, Feb 12, 1916, p 486

Further, according to the same circular

> The Hypophosphites are especially useful in all diseases where there is a lack of nutrition They are the best of all remedies in Rachitis non union of fractures, Osteomalacia and Syphilitic Periostitis

As for Syrupus Roborans itself

> This elegant preparation is the best general tonic and reconstructive known

The unwarranted therapeutic claims formerly made for it seem to be no longer circulated Syrupus Roborans is an unscientific, shotgun mixture

SCHLOTTERBECK'S SOLUTION HYPOPHOSPHITES OF LIME AND SODA (LIQ HYPOPHOSPHITUM, SCHLOTTERBECK'S)

The Schlotterbeck & Foss Co, Portland Maine, the manufacturers, say of their preparation

> This solution contains 30 grains of the combined Hypophosphites of Lime and Soda to the ounce It contains No Sugar No Acid and it is Perfectly Neutral'
>
> Indications for use—Galactostasis Imperfect Metabolism Neurasthenia Nervous Dyspepsia Insomnia Convalescence Acetonuria Cyclic Vomiting in Infants Diabetes Starvation Deficiency of Lime Mother's Teeth during Pregnancy Dentition of Infants, Rachitis Furunculosis *Vomiting of Pregnancy* Obesity
>
> Migraine is often caused by conditions for which this Solution is *one of the most satisfactory remedies*
>
> 'In Insomnia due to advancing age it will often act as a hypnotic

Of the hypophosphites the Schlotterbeck & Foss Company say

> It damning it with faint praise on the part of some of the leading medical authorities or utterly condemning it as useless on the part of others would kill a medicine the Hypophosphites would long since have disappeared as medicinal agents Negative testimony in regard to the value of a drug does not settle anything

Of their own preparation they say

> When we get the results that ought to follow the administration of Hypophosphites we have proved that Schlotterbeck's Solution enters the system unchanged'
>
> This Solution is primarily a blood and nerve tonic and chemical food'

Schlotterbeck's Solution of Hypophosphites of Lime and Soda is a semisecret preparation marketed under claims that are both unwarranted and misleading

ROBINSON'S HYPOPHOSPHITES

According to the manufacturers the Robinson-Pettet Company, Louisville, Ky, each fluidounce of this preparation contains

Hypophosphites Soda	2 gr
Hypophosphites Lime	1¼ gr
Hypophosphites Iron	1¼ gr
Hypophosphites Quinin	¾ gr
Hypophosphites Strychnine	1/16 gr'

It is claimed to be

> Nutritive Tonic Alterative A Standard Remedy in the treatment of Pulmonary Phthisis Bronchitis Scrofulous Taint General Debility, etc Stimulates Digestion promotes Assimilation

The declared composition of the preparation is unscientific, and the therapeutic claims are unwarranted

EUPEPTIC HYPOPHOSPHITES

Nelson, Baker & Co, Detroit, Mich, who market Eupeptic Hypophosphites, call this preparation

> A superior combination containing the Hypophosphites of Potassium, Calcium Iron and Manganese and the bitter tonics Quinin *and* Strychnin agreeably associated with natural digestive ferments of the pancreatic secretion It is thus a general reconstructive *tonic* The remedy is of especial value in the treatment of mental and nervous affections It is indicated in pulmonary tuberculosis in all wasting diseases in debilitated conditions generally and in all exhaustion from over work

On the basis of the manufacturer's statement, Eupeptic Hypophosphites must be regarded as a semisecret, unscientific shotgun preparation, exploited through unwarranted therapeutic claims

McARTHUR'S SYRUP OF THE HYPOPHOSPHITES COMP (LIME AND SODA)

So far as the recent literature and trade package are concerned, no information as to the composition of this product is furnished beyond what is conveyed in the name The advertising for McArthur's Syrup, like that for Fellows Syrup and Peters Syrupus Roborans has been modified as time has passed A few years ago it was advertised under such claims as the following

> " Has Stood the Test during many years for unequaled efficacy *in the treatment of Tuberculosis* *Indicated* also as a Tonic and Tissue Builder in convalescence from Fevers, in Nervous Diseases Rickets Senile Debility and Bronchitis"
>
> Its use is indicated in diseases of the chest, chronic cough throat affections general debility, brain exhaustion, cholera infantum and wasting diseases of children'

At present no definite claims seem to be made for it, the manufacturers evidently find the magic name of hypophosphites sufficient to evoke the spell for which the advertisement writer's aid was once sought A testimonial contained in a circular which seems to be still used illustrates both the kind of aura which surrounds hypophosphites in the minds of physicians who are still living in the past, and the kind of logic which has made the reputation of this and many other equally worthless preparations

> Just about six years ago I had a severe attack of La Grippe which almost killed me Left me with Asthma (Catarrh) and a severe cough Did not get out of the house for three months Took over a dozen bottles McArthur's Hypophos —came out all right and since then worked hard but last Fall took another cold but worked on, used McArthur's Hypophos, am using it now, am on my 12th bottle
>
> I have five or six patients whom I have put on McArthur's Hypophos but I do not prescribe the single bottle, but *wholesale* no less than half dozen bottles One patient is on his 24th bottle with *orders to get another half dozen and keep it up all winter I have* given the same order to all (keep it up all winter) and I myself intend to do the same for with its use I have lost no time—rain or shine I am doing my work I know what it has done for me and what it is doing for my patients

It would be hard to find a more characteristic example of the naive mental processes of the simple folk who in all good faith write testimonials for worthless medicines This well-meaning practitioner (a homeopath by the way), because he 'came out all right" after an attack of grip, returns all praise to McArthur's Hypophosphites, which he has taken "wholesale' Not the faintest doubt of the validity of his *post hoc ergo propter hoc* argument seems to glimmer across his consciousness

McArthur's Syrup of the Hypophosphites is an irrational preparation While its faults are fewer and less glaring than those of some other proprietaries, the circulation of such a testimonial as the one just quoted is sufficient of itself to cast suspicion on the product

BORCHERDT'S MALT OLIVE WITH HYPOPHOSPHITES, MALTZYME WITH HYPOPHOSPHITES, MALTINE WITH HYPOPHOSPHITES AND MALTINE WITH OLIVE OIL AND HYPOPHOSPHITES

These preparations are now described in the appendix *to* New and Nonofficial Remedies Borcherdt's Malt Olive with Hypophosphites (Borcherdt Malt Extract Company, Chicago) is said to contain in each 100 c c, 0.64 gm each of calcium and sodium hypophosphites with malt extract, *olive oil* and glycerin Maltzyme with Hypophosphites (Malt-Diastase Company, New York) is said to contain, in each 100 c c 0.4 gm each of calcium sodium and potassium hypophosphites and 0.005 gm each of iron and manganese hypophosphites, with maltzyme Maltine with Hypophosphites (Maltine Company, Brooklyn N Y) is said to contain in each 100 c c 0.64 gm each of calcium and sodium hypophosphites and 0.42 gm of iron hypophosphite with maltine Maltine with Olive Oil and Hypophosphites (Maltine Company, Brooklyn, N Y) is said to contain in each 100 c c, 0.6 gm each of calcium and sodium hypophosphites with maltine and olive *oil* In general no therapeutic claims are made for these mixtures so far as the hypophosphites are concerned The addition of hypophosphites to such mixtures is irrational and, since it tends to perpetuate the hypophosphite fallacy, detrimental to sound therapeutics

THE COUNCIL'S ACTION

The Council endorsed the conclusions of the work of Dr Marriott referred to above, and voted (1) that the therapeutic use of hypophosphites (except possibly in some cases as a convenient means of *administering* the positive element in the salt, as ammonium in ammonium hypophosphite or calcium in calcium hypophosphite) *is irrational*, *(2)* that the merits of each hypophosphite salt submitted for consideration under the foregoing exception *must* be judged individually and (3) that Fellows Syrup of Hypophosphites Peters' Syrupus Roborans, Schlotterbeck's Solution Hypophosphites of Lime and Soda Robinson's Hypophosphites, the Eupeptic

Hypophosphites of Nelson, Baker & Co, and McArthur's Syrup of the Hypophosphites are ineligible for inclusion in New and Nonofficial Remedies, and that Borcherdt's Malt Olive with Hypophosphites, Maltzyme with Hypophosphites, Maltine with Hypophosphites, and Maltine with Olive Oil and Hypophosphites be deleted from the appendix of N N R Of these preparations, all are in conflict with Rule 10, Fellows' Syrup, Schlotterbeck's Solution, Robinson's Hypophosphites and Nelson, Baker & Co's Eupeptic Hypophosphites are in conflict with Rule 6, the Fellows, Schlotterbeck, and Nelson, Baker preparations are also in conflict with Rule 1

Correspondence

Publication of Death Certificates

To the Editor —A physician may not reveal the nature of his patient's illness during the patient's life without danger of legal penalty But when the patient dies, the physician is required to give the cause of death in a certificate, which at once becomes a public document Many newspapers, as a custom, publish these certificates daily in a special column The obligation of secrecy during life, and the legal necessity which results in publicity after death, are strange contradictions

One of the evil results is that in many instances the actual cause of death is not given What family will submit without protest to a certificate which gives syphilis, morphinism or alcoholism as the cause of death of one of its members, when it is known that that cause will be made public for the gratification of the morbidly curious and to the distress and shame of the family? Unless this practice of publishing death certificates is discontinued, there will be no accurate data on the diseases which are regarded as shameful Further, since some other cause, usually a secondary one, must take the place of the actual cause, statistical evidence will continue to suffer confusion

A few examples which I have observed in consultation may be cited

A morphin habitue died of the direct results of withdrawal of morphin The cause of death was certified as arteriosclerosis, which was present, but certainly did *not* cause death

A man, aged 40, died suddenly of cerebral hemorrhage Syphilis had been recently diagnosed by means of blood and spinal fluid tests The cause of death was certified as apoplexy

A man, aged 44, under treatment for malignant syphilis, died from the immediate effects of apoplexy, which was given as the cause of death

A man, aged 50, suffered from aphasia and mental symptoms suggesting paresis He was a known syphilitic and died evidently from focal softening The cause of death was given as apoplexy

A man, aged 54, suffering from locomotor ataxia, with a known history of syphilis, died from the immediate effects of rupture of the heart, undoubtedly due to gumma and scar tissue formation The cause of death was given as myocarditis

A woman, aged 41, gave a history of two weeks' violent headache accompanied by vomiting Double choked disks were found, both blood serum and spinal fluid gave strong positive Wassermann reactions, and the spinal fluid contained an excess of globulin and 200 cells per cubic millimeter The cause of death was certified as meningitis

Clearly, all save the first death were due to syphilis, though in no single instance was the certificate made in such a way as to indicate its presence, either as a remote or an immediate factor On the other hand, in every instance the immediate cause of death as given was clearly present, though in reality it was in the nature of an artefact

The mortality from syphilis has long been understated Twenty years ago it was quite generally taught in clinics that syphilis was a negligible cause of death, except as it was an etiologic factor in paresis and locomotor ataxia Recognition of its frequency and high mortality rate has steadily increased since that time, until at present we are beginning to get an inkling of its destructive influence The accompanying table, rearranged from the United States census statistics for 1913, shows the mortality from syphilis, tabes and paresis in the registration area, with a second column showing the figures extended to cover the estimated rate for a total population of 100,000,000, paresis and tabes being, it is assumed, simply modified syphilis

MORTALITY FROM SYPHILIS TABES AND PARESIS

	Registration Area, Population 63,298,718, No of Deaths	Total Area, Population 100,000,000, No of Deaths
Syphilis	4,589	7,284
Tabes	1,674	2,657
Paresis	4,371	6,936
Total	10,634	16,877

It seems probable that the number of deaths from paresis is reasonably accurate, since the vast majority of patients suffering therefrom die in institutions, and the true cause is given, though even here errors of omission must be more frequent than errors of commission Deaths from locomotor ataxia are probably properly certified in most instances, as far as the diagnostic ability of the medical attendant permits But deaths from syphilis are clearly vastly understated In my practice, except in institutional work, I have never known a family physician to give syphilis as the cause of death Rarely paresis has been given Yet during the time the five cases cited above came under my observation, had they constituted all the false certificates given in the territory from which they were drawn, and were the ratio applied to the whole United States, at least 2,000 deaths could be added to this cause alone As a matter of fact, they probably do not constitute one-fifth the total number of erroneous certificates of death due to syphilis How much has the publication of death certificates to do with false certificates such as those cited above?

I am not inclined to criticize those who give some euphonious designation of the cause of death as a substitute for syphilis, etc, for I believe that the dead, or at least the living relatives of the dead, have the same right to privacy as the living patient Nevertheless, there ought to be some remedy for this state of affairs

I suggest that the American Medical Association, through its component state associations, take some action to make publication of death certificates illegal It is true that even were such acts passed and enforced, false certificates would still be issued But such legislation would certainly tend to increase the percentage of accurately reported cases

William House, M D, Portland, Ore

Better Medical Care for Rural Communities

To the Editor —I have read the Current Comment on this subject (The Journal, August 19) in which you assume a scarcity of physicians in rural communities, and state, as the cause thereof, the persistent demand on the part of the public for "specialists" Speaking from experience and observation gained as a country doctor, I do not believe there is any scarcity of physicians in rural communities in this country, except possibly in a few isolated instances During June and July of this year I traveled through the Southwest in Oklahoma and Kansas A large part of that time was spent in rural Oklahoma Oklahoma is a new country, and one would naturally expect to find a scarcity of physicians in a new sparsely settled country, if they were to be found in any place But I found no scarcity of physicians there Every little hamlet had two or three

For the past four years, I have been located in a rural community in Pennsylvania and am well acquainted with conditions from a medical point there, and I can assure you there is no scarcity of physicians in rural Pennsylvania I am located in a prosperous agricultural country, with coal mines on the west of us and oil in the east Most of the people are in comfortable circumstances, and on account of a great many of them having oil on their farms, many are wealthy, comparatively speaking We are only 12 miles from a city of 30,000, and about 50 miles from Pittsburgh, yet none of the people, or at least very few of them, run off to the cities to consult "specialists," except on the advice of myself, or some of the other physicians located in the community Among the objectionable features of a country practice are hard work, poor fees and long drives over roads almost impassable with snow or mud A machine can be used only a few months in a year The houses are poor, almost all houses in the country are insanitary and without any of the modern conveniences There are lack of facilities for educating the children, and lack of amusement All these disadvantages make the average country doctor dissatisfied with his lot in life especially if he and his wife have been accustomed to living in a city or large town Almost all of the physicians in this part of the country are capable men, and I think they are far more resourceful than the average city practitioner Allow me to digress to say I am not finding any fault with your main argument To lower the entrance requirements to the medical colleges would not make matters any better

C S Hunter M D, West Sunbury, Pa

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request

ALDEHYD IN URINE

To the Editor —1 Can you give me a test for aldehyd in the urine? 2 What significance has it in liver conditions? Please use initials only

S R S

Answer —1 The tests for reducing sugars, such as Fehling's depend on the presence in the urine of substances having an aldehyd or ketone structure The reduction of the copper salt in this ordinary sugar test, therefore, is due to the presence of aldehyds or ketones A well known test for aldehyd is Schiff's fuchsin reaction Dissolve 0.2 gm of rosanilin or the hydrochlorid in 10 c c of a freshly prepared, saturated aqueous solution of sulphur dioxid Allow the solution to stand until all signs of pink disappear and it becomes colorless or pale yellow Then dilute with water to 200 c.c and preserve for use in a tightly stoppered bottle

This reagent turns pink or violet on the addition of an aldehyd The solution must be carefully prepared and does not keep

2 Aldehyd in the urine would have the same general significance as sugar There is a difference of opinion as to whether the presence of one or more of the various sugars, with or without acetic and diacetic acid, definitely indicates disease of the liver It has been shown experimentally that interference with the circulation of the liver causes no glycosuria Von Moraczewski and Herzfeld have made tests which indicate that there is no specific substance eliminated in the urine which is exclusively characteristic of liver disease There is some evidence that the presence of acetone bodies in the urine bears some relation to liver conditions

POISON OAK AND POISON IVY

To the Editor —Relative to your Current Comment on "The Poisonous Principle of Poison Oak (The Journal Aug 5 1916) I should like to state that this principle must be highly volatile Living as I do in a country where poison oak abounds one often sees susceptible people poisoned by simply riding along roads where the fence rows have been freshly mown in July and early August Apparently the principle is water soluble as people who are perspiring are much more easily poisoned than those with cool dry skin People in the country treat themselves often with an alkaline bath Some use sodium bicarbonate others ammonia in water under the impression that the poison is an acid Whether the principle is an acid or an essential and highly volatile oil I do not presume to know The ammonia bath is at least not harmful to the patient if not taken too strong

L G Leland M D Newton Falls Ohio

Answer —Dr Leland doubtless refers to the poison ivy, *Rhus toxicodendron* as the true poison oak, *R diversiloba*, is not found in Ohio It has been shown that the poisonous constituent of the poison ivy is neither volatile nor water soluble the popular belief to the contrary notwithstanding Instead, the poison exists in the form of a thick emulsion which readily sticks to the hands and clothing and which under certain conditions may retain its activity for months or years The great abundance of poison ivy makes it easy for the clothing to become contaminated with this emulsion without the knowledge of the wearer, so that poisoning may take place at any time After the symptoms appear, the sufferer may remember that two or three days previously he had walked near some of the toxic plants, but knows that he did not touch any of them He assumes therefore that the poison must have reached him by passing through the air Then too, there are a large number of plants which are reported to have occasionally produced poisoning like rhus so that it is probable that in some cases of supposed poisoning without contact the victims may have encountered some one of these rather than one of the rhus species It was formerly believed that the rhus poison existed in the pollen and in the minute hairs of the plants Alighting on the skins of sensitive persons, especially if the victims are perspiring the pollen grains or hairs are not easily rubbed off and it was assumed that poisoning might result Many cases of poisoning without known contact with the plants were accounted for in this way until it was shown by indisputable chemical tests that neither the plant hairs nor the pollen grains contain any of the poison

Since the poison is soluble in alcohol and in alkalies, the best preventive of poisoning after exposure is to wash the parts with alcohol or with alcohol containing a little dissolved sodium hydroxid In absence of alcohol gasoline may be used An aqueous solution of an alkaline soap is effective An aqueous solution of sodium bicarbonate is less effective but is useful

Medical Education and State Boards of Registration

COMING EXAMINATIONS

California Los Angeles Oct 3 Sec Dr Charles B Pinkham, Room 27 Forum Bldg Sacramento

Colorado Denver Oct 3 Sec Dr David A Strickler, 612 Empire Bldg Denver

Georgia Atlanta Oct 10 12 Sec Dr C T Nolan Marietta.

Idaho Wallace Oct 3 Sec Dr Charles A Dettman Burke

Kansas Topeka Oct 10 12 Sec Dr H A Dykes Lebanon

Massachusetts Boston Sept 12 14 Sec Dr Walter P Bowers Room 501 No 1 Beacon St Boston

Michigan Lansing Oct 10 12 Sec, Dr B D Harison 504 Washington Arcade Detroit

Minnesota Minneapolis Oct 3 6 Sec, Dr Thomas S McDavitt 814 Lowry Bldg St Paul

Missouri Kansas City Sept 18 20 Sec, Dr J A B Adcock State House Jefferson City

Montana Helena Oct 3 Sec Dr William C Riddell Helena

New York Albany Buffalo New York and Syracuse Sept 19 22 Mr Harlan H Horner Chief Examinations Division The University of the State of New York State Department of Education Albany

Porto Rico San Juan Oct 3 Sec, Dr Quevedo Baez San Juan

Montana April Report

Dr W C Riddell secretary of the State Board of Medical Examiners of Montana, reports the written examination held at Helena, April 4-6, 1916 The total number of subjects examined in was 10, total number of questions asked, 50, percentage required to pass, 75 The total number of candidates examined was 29 of whom 21 passed and 8 failed The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Bennett Medical College (1907) 76 9 (1913) 75 2,	(1915)	76 7
Chicago College of Medicine and Surgery	(1913)	75 3
College of Physicians and Surgeons Chicago (1902) 76 4 82 4 (1905) 81 3	(1908)	75 3
Illinois Medical College	(1903)	78 2
Jenner Medical College	(1915)	77 6
University of Illinois	(1913)	76 7
Keokuk Medical College Coll of Phys and Surgs	(1908)	75 1
Johns Hopkins University	(1899)	85 6
University of Michigan Medical School	(1909)	79 1
University of Minnesota (1900) 81 2	(1910)	76 8
St. Louis College of Physicians and Surgeons	(1906)	76 4
University of Missouri	(1906)	78 3
John A Creighton Medical College	(1914)	79 1
Columbia University College of Phys and Surgs	(1911)	78 1
Jefferson Medical College	(1915)	75 9
FAILED		
Chicago College of Medicine and Surgery	(1916)	70 1
College of Physicians and Surgeons Chicago	(1910)	70 2
Fort Wayne College of Medicine	(1892)	52 7
University of Louisville	(1908)	*
College of Physicians and Surgeons Baltimore	(1914)	74 1
Starling Ohio Medical College	(1913)	71 5
Milwaukee Medical College	(1912)	64 6
Western University London, Ont	(1914)	67 3

* Did not complete the examination

Hypophosphites of Nelson, Baker & Co, and McArthur's Syrup of the Hypophosphites are ineligible for inclusion in New and Nonofficial Remedies, and that Borcherdt's Malt Olive with Hypophosphites, Maltzyme with Hypophosphites, Maltine with Hypophosphites, and Maltine with Olive Oil and Hypophosphites be deleted from the appendix of N N R Of these preparations, all are in conflict with Rule 10, Fellows' Syrup, Schlotterbeck's Solution, Robinson's Hypophosphites and Nelson, Baker & Co's Eupeptic Hypophosphites are in conflict with Rule 6, the Fellows, Schlotterbeck, and Nelson, Baker preparations are also in conflict with Rule 1

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Syphilis	4,589	7,284
Tabes	1,674	2,657
Paresis	4,371	6,936
Total	10,634	16,877

It seems probable that the number of deaths from paresis is reasonably accurate, since the vast majority of patients suffering therefrom die in institutions, and the true cause is given, though even here errors of omission must be more frequent than errors of commission Deaths from locomotor ataxia are probably properly certified in most instances, as far as the diagnostic ability of the medical attendant permits But deaths from syphilis are clearly vastly understated In my practice, except in institutional work, I have never known a family physician to give syphilis as the cause of death Rarely paresis has been given Yet during the time the five cases cited above came under my observation, had they constituted all the false certificates given in the territory from which they were drawn, and were the ratio applied to the whole United States, at least 2,000 deaths could be added to this cause alone As a matter of fact, they probably do not constitute one-fifth the total number of erroneous certificates of death due to syphilis How much has the publication of death certificates to do with false certificates such as those cited above?

I am not inclined to criticize those who give some euphonious designation of the cause of death as a substitute for syphilis, etc, for I believe that the dead, or at least the living relatives of the dead, have the same right to privacy as the living patient Nevertheless, there ought to be some remedy for this state of affairs

I suggest that the American Medical Association, through its component state associations, take some action to make publication of death certificates illegal It is true that even were such acts passed and enforced, false certificates would still be issued But such legislation would certainly tend to increase the percentage of accurately reported cases

William House, M D, Portland, Ore

Better Medical Care for Rural Communities

To the Editor —I have read the Current Comment on this subject (The Journal, August 19) in which you assume a scarcity of physicians in rural communities, and state, as the cause thereof, the persistent demand on the part of the public for "specialists" Speaking from experience and observation gained as a country doctor, I do not believe there is any scarcity of physicians in rural communities in this country, except possibly in a few isolated instances During June and July of this year I traveled through the Southwest in Oklahoma and Kansas A large part of that time was spent in rural Oklahoma Oklahoma is a new country, and one would naturally expect to find a scarcity of physicians in a new sparsely settled country, if they were to be found in any place But I found no scarcity of physicians there Every little hamlet had two or three

For the past four years, I have been located in a rural community in Pennsylvania and am well acquainted with conditions from a medical point there, and I can assure you there is no scarcity of physicians in rural Pennsylvania I am located in a prosperous agricultural country, with coal mines on the west of us and oil in the east Most of the people are in comfortable circumstances, and on account of a great many of them having oil on their farms, many are wealthy, comparatively speaking We are only 12 miles from a city of 30,000, and about 50 miles from Pittsburgh, yet none of the people, or at least very few of them, run off to the cities to consult "specialists," except on the advice of myself, or some of the other physicians located in the community Among the objectionable features of a country pracnebulae, solution of aluminum acetate, solution of aluminum subacetate and wine of antimony The two last named are also included in 'Useful Drugs" Several formulas for new classes of preparations which may or may not be found superior to old forms are paste pencils for the application of medicaments to limited areas of the skin, mulls, which are ointments spread like plasters, and fluidglycerates, which are fluidextracts in which glycerin takes the place of alcohol It should be noted also that, as a result of criticism, the alcohol content of some preparations has been reduced

As a whole, the present edition of the National Formulary, like its predecessors, is "pharmaceutically useful but not a therapeutic necessity" To say that it is not a therapeutic necessity is to state the matter mildly, since most of the formulas and almost all of the drugs described have been discarded long since by rational therapeutists So long as there are physicians who prescribe therapeutic monstrosities, however, the druggist should have the aid that is furnished by this book in compounding them From the pharmacist's point of view, therefore, the book is a valuable one Physicians who have a scientific training in the pharmacology of drugs will not want it, others will be better off without the temptations offered by its many irrational formulas

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Miscellany

Preventive Medicine and American Research — An Appreciation from Abroad

It is perhaps not sufficiently remembered by us how deeply the world is indebted to American investigators in the field of preventive medicine American researches have thrown a bright light upon difficult problems concerning what we call tropical disease Yellow fever may be instanced in this connection It was in 1900 that the United States government appointed a commission to proceed to Havana, under the leadership of Major Walter Reed, of the Medical Corps, with whom were associated Assistant Surgeons James Carrol, Jesse W Lazear, and A Agramonte, to investigate the etiology of this disease They succeeded in demonstrating among other things that it was spread by the bites of infected stegomyia mosquitoes and in no other way, and Reed s experiments remain as models of scientific research, both for the exactitude with which they were adapted to the points to be proved and for the precautions taken to exclude all sources of error To their everlasting credit the American soldiers offered themselves fearlessly as subjects for experiment, some of them after being bitten by infected mosquitoes contracted the disease, among them being Carrol and Lazear, the latter of whom died a martyr to science Based upon these experiments, preventive measures, including mosquito destruction, were formulated at Havana, which for 150 years or more had been a veritable hotbed of yellow fever, but from which since 1901 the disease has completely disappeared, save for a few occasional imported instances The same methods have been employed more recently in other endemic areas of the disease, such as Rio de Janeiro, Para, Manaos and elsewhere, from which yellow fever has now also vanished Another great victory was achieved, and an object lesson given to all tropical countries in the Panama Canal Zone, where yellow fever malaria and other insect-borne diseases had in the past ravaged the population year by year The Americans began to construct the Isthmian Canal in 1904, and Colonel (now Surgeon-General) Gorgas, who had formerly served as chief sanitary officer at Havana when Reed s commission had made their experiments, was appointed chief of the new sanitary department In view of the previous disastrous experiences in this region it is safe to say that without the labors of this sanitary department the Panama Canal would never have been completed Through the well directed measures of Colonel Gorgas and his staff, yellow fever, malaria blackwater fever, dysentery and other diseases were brought entirely under control, and the general death rate among the laborers, which was 52 45 per 1,000 in 1904 fell to 20 49 in 1912 Briefly, what was once an intensely unhealthy area became salubrious, and the doctrines of Manson and Ross were triumphantly established The work at Panama, like that at Havana, is always alluded to by writers on germane subjects, but its detailed history would repay more attention than it has received, while there are other valuable American contributions to preventive medicine which are frequently passed over The investigation of that mysterious disease pellagra has been very carefully prosecuted in the United States in recent years, by the McFadden Thompson Commission of New York and other workers, and already with encouraging results A great decrease has recently taken place in America and other parts of the world, including Egypt, in the incidence of ankylostomiasis or hookworm disease, due partly to the efforts of Ashford and others with the assistance of the American International Commission, an offshoot of the Rockefeller Foundation The etiology of exanthematic typhus was independently worked out by two groups of American investigators, Anderson and Goldberger, and Ricketts and Wilder, it was only an unlucky chance which prevented the earlier publication of their results before those of M Nicolle and his collaborators in Tunis had made public their incrimination of the body louse as the insect transmitter of this disease The credit, therefore, of the discovery must be shared by the Americans Much new light has been thrown upon cerebrospinal fever and epidemic poliomyelitis by American workers, and American military and other medical officers stationed in the Philippines have contributed greatly to the general fund of knowledge of tropical diseases, particularly as regards beriberi Nor do these examples exhaust the list, but they will suffice to show some at least of our indebtedness in preventive medicine to scientific workers in America

Our American visitors will doubtless find a good deal that is new to them in our arrangements for the care of the sick and wounded for the prevention of disease among our troops at home and in the field, and for maintaining in other ways the health and efficiency of the British army It may be mentioned in this connection that although antityphoid inoculation originated in England, the adoption of the procedure in America helped largely to confirm its value and assisted in gaining its acceptance by our own military authorities We understand that only one officer of the British army has died from typhoid fever since the commencement of the war, and we believe that at the present moment there are not more than two dozen typhoid cases among our troops This remarkable freedom of an immense army in the field from what has been generally deemed a necessary curse is greatly due to the systematic adoption by the authorities in the United States of Wright's work—*Lancet*, London, June 3, 1916

Date of Conception and Sex of Child in Relation to Menstruation

THE JOURNAL mentioned last December, p 2205, that Siegel in Germany is charting data obtained by comparing the date of a soldier's brief furlough with the pregnancy of his wife The *Ugeskrift* brings an abstract of his latest report on the subject. The charts of the later series of 220 cases show essentially the same curves as his first series of 100 cases They demonstrate that conception was most likely to occur when the husband reached home during the first days after cessation of the menses The probability of conception then grew progressively less until almost constant sterility was the rule for the women during the days preceding the next menstruation The findings thus confirm the usual assumption Siegel has been studying the data further seeking to discover laws predetermining the sex of the child He divides the intermenstrual period into three phases (1) from the first day of menstruation to the ninth day, (2) from the tenth to the fourteenth day and (3) from the fifteenth to the twenty-second day The remaining six days are not con sidered, as the woman may be regarded as temporarily sterile during this phase He was able to obtain data along these lines in eighty cases The *pregnancies* dating from the first period gave 37 boys and 7 girls, second period, 4 boys and 8 girls, and third period, 3 boys and 20 girls Omitting from the figures the illegitimate children—as affording possibly less reliable data—the proportions were first period, 19 boys and 1 girl, second period, 2 boys and 6 girls, and third period, 1 boy and 15 girls

Medicolegal

Adulteration and Misbranding

(United States vs Forty Barrels (U S), 36 Sup Ct R 573)

The Supreme Court of the United States, in this case wherein forty barrels and twenty kegs of "coca-cola," claimed by the Coca-Cola Company of Atlanta, Ga, were libeled for condemnation under the food and drugs act, reverses the judgment of the Circuit Court of Appeals, which affirmed a judgment of the District Court entered on a verdict directed in favor of the company The supreme court, in an opinion delivered by Mr Justice Hughes, discusses adulteration and misbranding under the act The court says, among other things, that a description of the purpose of the statute would be inadequate which failed to take account of the design to protect the public from lurking dangers caused by the introduction of harmful ingredients, or which assumed that this end was sought to be achieved by simply requiring certain disclosures It cannot be assumed that simply because a prepared "food" has its formula and distinctive name, it is not, as such, "adulterated" Component parts, or constituents, of the article which is the subject of the described traffic are not excluded, but are included in the definition "Adulteration" is not to be confused with "misbranding" The fact that the provisions as to the latter require a statement of certain substances if contained in an article of food, in order to avoid "misbranding," does not limit the explicit provisions of Section 7 as to adulteration Both provisions are operative "Adulteration" is "any" added poisonous or "other added deleterious ingredient," provided it "may render such article injurious to health" Proprietary foods sold under distinctive names are within the purview of the provision Not only is "food" defined as including articles used for food or drink, "whether simple, mixed or compound," but the intention to include "proprietary foods" sold under distinctive names is manifest from the provisos in Section 8 The fundamental contention of the claimant was that a constituent of a food product having a distinctive name cannot be an "added" ingredient In such case, the standard is said to be the food product itself which the name designates It must be this "finished product" that is "adulterated" If this were so, the statute would be reduced to an absurdity It does not seem to the court to be a reasonable construction that in the case of "proprietary foods" manufactured under secret formulas Congress was simply concerned with additions to what such formulas might embrace Undoubtedly, it was not desired needlessly to embarrass manufacturers of "proprietary foods" sold under distinctive names, but it was not the purpose of the act to protect articles of this sort regardless of their character Only such food products as contain "no unwholesome added ingredient" are within the saving clause, and in using the words quoted the court is satisfied that Congress did not make the proprietary article its own standard Equally extreme and inadmissible is the suggestion that where a "proprietary food" would not be the same without the harmful ingredient, to eliminate the latter would constitute an "adulteration" under Section 7, Subdivision 3, by the abstraction of a "valuable constituent" In that subdivision Congress evidently refers to articles of food which normally are not within the condemnation of the act The court can see no escape from the conclusion that the caffein was in this case an "added" ingredient within the meaning of the statute On the question of whether it was a poisonous or deleterious ingredient which might render the article injurious to health, there was a decided conflict of competent evidence, and it is sufficient to say that the question was plainly one of fact which was for the consideration of the jury The court also holds that there was error in directing a verdict for the claimant on the count charging misbranding or that the expression "coca-cola" represented the presence in the product of the substances coca and cola, and that it contained "no coca and little if any cola" To call a compound by a name descriptive of ingredients which are not present is not to give it "its own distinctive name"—which distinguishes it from other compounds—but to give it the name of a different compound That is not protected by the proviso allowing distinctive names, unless the name has achieved a secondary significance as descriptive of a product known to be destitute of the ingredients indicated by its primary meaning

Unsuccessful Treatment of Fracture and Failure to Discover Dislocation

(Houghton vs Dickson (Calif), 155 Pac R 128)

The District Court of Appeal of California, Second District, reverses a judgment for $3,500 damages obtained by the plaintiff for alleged malpractice in the treatment of an injury to his right arm due to the kick of a horse, January 25 It appeared that the ulna was fractured, and that, after receiving emergency treatment, the plaintiff, on the day following the injury, placed himself in the care of the defendant, who, after an examination with a fluoroscope, set the arm, using splints to retain the broken bones in place On the following day, the defendant discovered that it would be necessary to wire the fractured ends of the bone, which he did at a hospital The defendant dressed, bandaged, and otherwise treated the arm until March 29, on which date the plaintiff consulted another physician The latter found a dislocation at the elbow of the radius, that there had been no union of the ends of the fractured bone, that the wires used in securing the same had broken, and that pus had developed in the wound, all of which conditions, except the formation of pus in the wound, were indicated by a roentgenogram taken March 29 The court holds that the evidence wholly failed to show any lack of care and skill on the part of the defendant in setting and treating the fractured bone, and failed to show when the dislocation occurred, or that a physician in the exercise of ordinary care and skill should, under the circumstances shown, have discovered the dislocation and treated it Assuming that the radius was dislocated at the time when the defendant undertook the treatment of the fractured bone, or that it occurred thereafter during the treatment, such fact alone did not show that the defendant was lacking in ordinary care and skill in not discovering such condition So far as it appeared, the defendant was called on to set the fractured bones No intimation was given him of any injury to the elbow Whether or not the defendant should, under the circumstances, in the exercise of ordinary and reasonable care and skill, have discovered such condition, assuming it to have existed, was a question for expert testimony, and none was offered Conceding that the physician consulted March 29 had no difficulty then in discovering the dislocation, nevertheless that fact did not show a want of ordinary care and skill on the part of the defendant in failing to discover it, since the other physician, by reason of superior learning and advantages, might have been a man possessing far more than ordinary skill in his profession The implied contract on the part of the defendant was, not only that he possessed that reasonable degree of learning and skill possessed by others of his profession, but that he would use reasonable and ordinary care and skill in the application of such knowledge to accomplish the purpose for which he was employed, and if he possessed such reasonable degree of learning, and in the treatment of the plaintiff's injury exercised ordinary care and skill in applying it, he was not liable for results that followed In the absence of evidence to the contrary, the law will presume the exercise of a reasonable degree of care and skill

Society Proceedings

COMING MEETINGS

Am Assn for the Study and Prev of Inf Mort, Milwaukee Oct 19 21
American Association of Railway Surgeons, Chicago Oct 17 19
American Roentgen Ray Society Chicago Sept 27 30
Colorado State Medical Society Glenwood Springs Sept 5 7
Idaho State Medical Association, Twin Falls, Oct 5 6
Indiana State Medical Association Ft Wayne Sept 27 29
Kentucky State Medical Association, Hopkinsville Oct 24 27
Minnesota State Medical Association Minneapolis Oct 11 13
Missouri Valley Medical Society, Omaha, Sept 21 22
Nevada State Medical Association Reno Oct 10 12
New Mexico Medical Society, Albuquerque Oct 11 13
Oregon State Medical Association Portland, Sept 14 15
Pennsylvania State Medical Society Scranton Sept 18-21
Utah State Medical Association Salt Lake City Sept 12 13
Virginia State Medical Society Norfolk Oct 24 27
Wisconsin State Medical Society Madison, Oct 4 6

MICHIGAN STATE MEDICAL SOCIETY

Fifty First Annual Meeting held at Houghton Aug 16 17 1916

The President DR. A. W HORNBOGEN, Marquette, in the Chair

The Michigan Campaign against Tuberculosis

DR WILLIAM DE KLEINE, Lansing The state legislature has appropriated from the general fund of the state $50 000 for the fiscal year ending June 30, 1916 and the further sum of $50 000 for the fiscal year ending June 30 1917, for the purpose of making a tuberculosis survey of the state the employment of medical men and nurses and other experts to make the survey, and the organization of antituberculosis societies throughout the state and the prosecution of a campaign to lessen the ravages of the disease The county has been adopted as a working unit A three weeks' campaign is planned in each one The work is advertised through the newspapers through window cards, and by calls on physicians and patients Free examinations for tuberculosis are offered at a public clinic Chest examinations are made, and patients advised of the findings During the week following the examinations the nurses visit the homes of all persons found with positive or suspicious cases They also call on all the physicians and they are advised of the findings in their individual patients At the same time, health talks are given in all the schools, and public lectures wherever opportunity affords

Since Oct 1, 1916 twenty-six counties have been visited More than 9,000 people have been examined More than 2,000 cases of tuberculosis have been reported, and the names of more than 1 700 persons with suspicious cases have been filed Nurses have visited the homes of more than 3 700 people Thousands of educational articles for newspapers have been written, mostly in the form of news items, as well as hundreds of editorials Hundreds of lectures and health talks have been given in schools Several counties have been induced to consider the question of erecting a tuberculosis sanatorium Several city councils and boards of health have been induced to consider the question of employing a full-time health officer Three of them have taken action

The medical profession is also interested in the problem of whipping tuberculosis Clinics are held for the benefit of the local physicians as much as for the patients All physicians are invited to cooperate From 50 to 100 per cent of them come to see the work. Many of them spend a whole week

The Tuberculosis Problem

DR. ARTHUR F FISCHER, Hancock We should teach the laity that any of the following symptoms should arouse their suspicions and cause them to seek an interpretation 1 A succession of colds without the energy to overcome them 2 Persistent loss of weight without any readily explainable cause. 3 A general feeling of fatigue and malaise not explainable by normal exertion 4 Flush of feverishness arising late in the afternoon 5 Spitting of blood 6 Persistent cough extending over a period of one month especially if not preceded by nasal or throat symptoms 7 Digestive disturbances, especially when accompanied by any of the foregoing 8 Night sweats

In studying chest symptoms it is essential first to know why you pound the chest and apply the ear to the mysterious column of air in the rubber tube The entire object is to elicit the consistency of the lung tissue that lies between the normal air tubes and the surface You must be able to detect a normal chest when you hear it before you can begin to suspect the abnormal All these signs are studied by comparison of the right and left lungs Comparative percussion of the two sides will elicit any dulness Comparative auscultation of the inspiratory breath sounds in normal and in forced breathing and finally a study of the inspiration after a definite cough are made

The diagnosis of tuberculosis is a time-consuming proposition It requires a patient stripped to the waist and careful going over the various sections of the lung with trained ear to elicit any shade of abnormality This cannot be done in five minutes nor often in less than two hours, and sometimes it requires repeated examinations coupled with weeks of temperature records, and elimination of symptoms

The Radial Cholesterin Stone in Gallbladder Surgery

DR HENRY J VANDENBERG, Grand Rapids The radial cholesterin stone occurs in the gallbladder as a result of stagnation alone Its existence tends to keep up the stagnation which predisposes to infection The original cause of stagnation may have disappeared A noninfected gallbladder containing a cholesterin stone becoming infected may result in a hydrops, formation of a mixed cholesterin stone by apposition of cholesterin-pigment-calcium, or the formation of secondary stones In many cases of multiple gallstones, a radial cholesterin stone may be found among them The presence of a radial cholesterin stone alone without infection does not produce symptoms Infection, then, is not necessary for gallstone formation, stagnation alone is enough Stagnation plus infection causes the formation of ordinary gallstones

Insanity in Pelvic Diseases in Women

DR. WALTON P MANTON, Detroit Pelvic disease is of frequent occurrence among insane women In the great majority of cases the insanity is the product of a combination of causes Occasionally cases present themselves in which the insanity is apparently due to the direct influence of the pelvic pathologic condition, as following continued brooding over the presence of a tumor or the like, but such instances are of so infrequent occurrence as to be almost negligible

Relationship Between Gynecologic and Neurologic Conditions

DR REUBEN PETERSON, Ann Arbor Cases naturally fall into certain groups These types of cases are not always distinct As a rule they can be fairly classified as follows 1 Women with neurologic symptoms whose pelvic organs are anatomically and physiologically normal 2 Women with neurologic symptoms whose genital organs are anatomically normal, but whose functions are abnormal 3 Women with derangements of the nervous system whose pelvic organs are unquestionably diseased, and where the disease may be aggravated, but does not necessarily cause the nervous manifestations 4 Women of naturally good nervous organizations, whose nervous manifestations have followed on, and hence apparently are due to true pelvic lesions

Perhaps the largest number of individuals in the first group are to be found among the epileptics, if we may class this disease among the functional neuroses In many women who are epileptics the attacks come on only at the menstrual periods later being regular and painless and the pelvis perfectly normal This leads to the faulty deduction that removal of the ovaries and the resulting cessation of menstruation will lead to the stoppage of the epileptic seizures, notwithstanding the mass of clinical evidence to the contrary What has been said about the epileptic is just as true for the woman who suffers from hysteria, neurasthenia, neuralgias in various parts of the body, hyperesthesia and anesthetic areas

In the second group belongs the great majority of young unmarried women suffering from some form of functional

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

The American Journal of Obstetrics and Diseases of Women and Children, York, Pa

August LXXII No 464

1 The Ductless Glands and Their Relation to the Treatment of Functional Gynecologic Diseases M Rabinovitz, New York —p 177
2 Results of Routine Study of Placenta J M Slemons, New Haven Conn —p 204
3 Postpartum Hemorrhage F W Rice, New York —p 215
4 Psychic Vaginismus Report of Two Cases P H Williams New York —p 226
5 Study of 117 Cases of Ectopic Gestation E Iosket New York —p 232
6 New Method of Calculating the Required Posterior Sagittal Diameter of the Outlet in a Lateral Contraction of the Pelvis C D Daniels Philadelphia —p 238
7 Management of Pregnancy and Labor Complicated by Heart Disease Augustus A Hussey Brooklyn —p 240
8 Pregnancy Complicated by Cancer of Cervix N L. Zimmermann Brooklyn —p 251
9 The Teacher s Inheritance W W Chipman Montreal Canada —p 256
10 Elizabeth Steel Magee Hospital and Its Work C E Ziegler Pittsburgh —p 265
11 Rarer Forms of Toxemia of Pregnancy M Hornstein New York —p 270
12 Treatment of Tragic Forms of Rupture in Ectopic Pregnancy by Vaginal Section and the Application of a Clamp W W Babcock Philadelphia —p 276
13 Cesarean Section for Strangulated Ovarian Cys Complicating Labor R. Cadwallader, San Francisco —p 280
14 Fried Wound Dressings D H Stewart New York City —p 282

American Journal of Physiology, Baltimore

August XLI No 2

15 Some Metabolic Effects of Bathing in the Great Salt Lake II H I and H A Mattill —p 143
16 *Relation Between Amount of Catalase in Different Muscles of Body and Amount of Work Done by These Muscles W E Burge Chicago —p 153
17 Study of Blood Gases During Hibernation in the Wood Chuck the Respiratory Capacity of the Blood A T Rasmussen, Ithaca N Y —p 162
18 The Ductless Glands and Hibernation F C Mann, Rochester Minn —p 173
19 *Regulation of Blood Volume After Injections of Saline Solutions Studies of Permeability of Cellular Membranes I L J Bogart F P Underhill and L B Mendel New Haven Conn —p 189
20 Action of Saline Colloidal Solutions on the Regulation of Blood Volume Studies of Permeability of Cellular Membranes II L J Bogart F P Underhill and L B Mendel New Haven Conn —p 219
21 *Influence of Alkaline Saline Solutions on Regulation of Blood Volume Studies of Permeability of Cellular Membranes III L J Bogart F P Underhill and L B Mendel New Haven Conn —p 229
22 Influence of Iodin and Sodium Iodid on Circulation W Salant and A E Livingston Washington D C —p 234
23 Thromboplastic Action of Cephalin J McLean Baltimore —p 2 0
24 *Rapidity With Which Alcohol and Some Sugars May Serve as Nutriment H L Higgins Boston —p 258

16 **Effect of Work on Catalase of Muscle**—The amount of catalase in the different muscles of the body Burge says varies with the amount of work done by these muscles, those doing the greatest amount of work contain most catalase, while the muscles doing the least work contain the least catalase By increasing or decreasing the external physical work of a muscle the amount of catalase is correspondingly increased or decreased If the external physical work of a muscle such as the pectoralis of pigeons is reduced practically to zero, the amount of catalase is reduced by approximately 38 per cent Catalase is greater in amount in the muscles of warm blooded animals in which oxidation is more intense than in corresponding muscles of cold blooded animals in which oxidation is less intense

19 **Regulation of Blood Volume and Saline Solutions**—The following is a summary of the more important conclusions drawn by the authors The regulation of the blood volume in normal animals is both rapid and efficient The activity of the kidneys is not essential to this regulation of the blood volume In conditions of nephritis, inability to restore the blood volume to normal after injections of saline solution usually manifests itself Morphin sulphate produces an effect on the regulation of the blood volume comparable with that resulting from a condition of nephritis Restoration of the blood to normal after intravenous injections of saline solutions is not primarily effected by the transfer of the excess of fluid from the blood vessels to the thoracic lymphatic system The tissues act as a reservoir for this fluid The capacity of the tissues of rabbits to absorb fluid is approximately four times the normal blood volume of the animal

21 **Action of Alkaline-Saline Solutions on Blood Volume**—The addition of alkali, up to 0 4 per cent sodium carbonate to the fluid injected, the authors state, has no apparent effect on the regulation of the blood volume either in normal or in nephritic animals The rate at which, and the extent to which, injected fluid leaves the blood vessels is unaffected by the addition of sodium carbonate

24 **Nutritive Value of Alcohol and Some Sugars**—By determination of respiratory quotients in periods of three and four minutes' duration on subjects without breakfast, it was concluded by Higgins that (*a*) alcohol begins to be burned in appreciable quantity in from five to eleven minutes after taking, with some subjects the combustion began more quickly than with others, (*b*) sucrose, lactose and levulose begin to be burned quite as soon as alcohol, if not sooner, (*c*) glucose and maltose are not utilized as food as soon as the other sugars or alcohol approximately twenty to thirty minutes elapsing before their combustion plays an important part in the metabolism There is a distinct difference between the metabolism in men of glucose and of levulose and galactose as shown by a study of the gaseous exchange, especially the respiratory quotients

Annals of Surgery, Philadelphia

August LXIV No 2

25 Preparedness R G LeConte, Philadelphia —p 129
26 Surgical Lessons of European War A M Fauntleroy, Washington D C —p 136
27 Localization and Extraction of Projectiles and Shell Fragments J M Flint New Haven, Conn —p 151
28 Methods of Handling Injuries on Transportation Systems and Wound Treatment K A J Mackenzie Portland Ore —p 184
29 *Chronic General Infection With Bacillus Pyocyaneus L Freeman Denver Colo —p 195
30 Etiology of Surgical Scarlatina J B Roberts Philadelphia —p 203
31 *Melanotic Cancer W B Coley and J P Hoguet, New York —p 206
32 Diagnosis and Treatment of Trifacial Neuralgia E H Beckman Rochester Minn —p 242
33 Dislocation of First Cervical Vertebra A F Jonas Omaha, Neb —p 248
34 Treating Cysts of the Breast by Evacuation of Fluid F J Shepherd Montreal Canada —p 254

29 **Chronic General Pyocyaneus Infection**—The features of especial interest in Freeman's case are Its extreme chronicity having lasted nearly eleven months The typical neuralgic pains followed by paresis and muscular atrophy The absence of the bacillus pyocyaneus from the blood and its presence in the bile The absence of any discoverable point of infection Recovery following drainage of the gallbladder and the use of an autogenous vaccine The occurrence of cirrhosis of the liver The presence of ascites and pleural effusion which promptly disappeared, the former following an abdominal incision and the latter a single aspiration The satisfactory recovery after so severe and protracted an illness with the exception of a moderate paresis of the lower limbs which seems to be improving

31 **Melanotic Cancer**—The authors emphasize that the chief hope of reducing the mortality of this extremely fatal type of neoplasm must rest with prophylactic treatment, i e, the surgical removal of all pigmented moles, as soon as observed and particularly in all cases in which the anatomic locality renders them liable to irritation or to external injury If this rule is rigidly followed the number of cases will be markedly diminished Ninety-one cases are analyzed

Archives of Internal Medicine, Chicago

August, XVIII, No 2

35 *Dietary Deficiency as Etiologic Factor in Pellagra E B Vedder, Washington, D C—p 137
36 *Incidence of Pellagra in Spartanburg County, S C, and Relation of Initial Attack to Race, Sex and Age J I Siler, P E Garrison and W J McNeal, New York—p 173
37 *Lime Deficiency of Diabetes M Kahn and M H Kahn, Pittsburgh—p 212
38 *Inactivation of Pepsin Effects of Various *Salts and Alkaline* Substances W W Hamburger and B Halpern, Chicago—p 228
39 *Rate of Absorption of Various Digitalis Preparations from Gastro Intestinal Tract C C Haskell, C S McCants and F P Gardner, Richmond, Va—p 235
40 *Ventricular Escape, Cases Showing a Ventricular Rate Greater Than That of the Auricles P D White, Boston—p 244
41 Study of Proteins in Urine, Comparison of Gravimetric and Nephelometric Methods for Their Estimation J T W Marshall, H W Banks and S S Graves, New York—p 250
42 *Transient Auricular Fibrillation *An* Electrocardiographic Study E B Krumbhaar, Philadelphia—p 263

35 **Dietary Deficiency Cause of Pellagra**—There is a certain similarity between pellagra and other known deficiency diseases, namely, beriberi and scurvy Much of the evidence that has been presented as a proof of the infectious nature of pellagra can be explained in accordance with a deficiency hypothesis A deficiency is demonstrable in the diets of most pellagrins This deficiency appears to Vedder to result from the too exclusive use of wheat flour, in association with cornmeal, salt meats and canned goods, foods that are known to be deficient in vitamins Changes in the diet of the people of the South have occurred during the past ten or fifteen years Since we do not know all the changes that have occurred, and cannot judge accurately the importance of the known changes the author holds that it is unscientific to assume that the recent increase in pellagra cannot be due to such changes The hypothesis that pellagra is caused by a deficiency is very plausible and must be taken into consideration in subsequent studies of this disease

36 **Pellagra in South Carolina**—Several points are made by the authors which bear emphasis The disease has attacked the white race more than the negroes The death rate in initial attack has been 41 8 per cent for negroes and 12 per cent for the white race Pellagra was very rarely observed under the age of 1 year Evidence of residence very close to an antecedent pellagrin has usually been quite clear in the cases of infantile pellagra The milk of pellagrous mothers cannot be regarded as the cause or the vehicle of the cause of pellagra in infants The age period 12 to 16 years is relatively free from initial attacks of pellagra From age 20 to age 50 years, the number of women attacked by pellagra gradually diminishes and the number of men attacked gradually increases The lower incidence rate and the higher death rate for those attacked have occurred in negroes in conjunction with greater poverty of this race and a diet poorer in quality, quantity and variety Incidence has been lowest in the sex and age groups of negroes most completely segregated from white pellagrins

37 **Lime Deficiency in Diabetes**—The lime metabolism of five diabetic patients was studied by the Kahns The patients were kept on a Folin diet, no sugar being given, and portions of the mixed diet were taken to the laboratory for analysis The urine and feces were collected daily and analyzed The experiments were conducted for nine days The patients were in the mild stages of diabetes, none of them suffering from any discomfort There was no acidosis, no ulceration, no pruritus The glycosuria varied in the different cases from 1 5 to 2 7 per cent It was found that the patients on this diet constantly lost lime from their bodies The administration of calcium intravenously to diabetic patients causes a marked fall in the glucose excretion It induces a gradual decline in the glycemia of the patients The quantity of urine excreted is reduced Certain symptoms ascribable to the diabetes are relieved by this treatment Acetone, diacetic acid and betaoxybutyric acid never developed in these cases

38 **Inactivation of Pepsin**—The inhibition of pepsin by sodium chlorid and sodium phosphate suggests the possibility of the clinical use of these salts in the prevention and cure of chronic gastric ulcer The strong neutralizing value of sodium carbonate, magnesium carbonate and calcium hydroxid suggests the possibility of their use under similar conditions

39 **Absorption of Ingested Digitalis**—According to the authors the official tincture of digitalis is absorbed more rapidly from the gastro-intestinal tract of cats than is the infusion made from the same leaf The three special preparations of digitalis, namely, digipuratum, digalen, and digipoten, seem to possess no decided advantage over the official tincture Digalen is absorbed more rapidly, but the variability in strength and the low standard of strength, together with the high cost of this preparation, more than offset this possible advantage

40 **Ventricular Escape**—Two types of ventricular escape are described by White (1) the occasional type, in which the automatic stimulus production in the atrioventricular node is released by depression, and hence slowing, of the pacemaker in the sinu-auricular node, and (2) the rare type, in which the atrioventricular nodal center of stimulus production is so irritable that it escapes from the control of the sinu-auricular node Both factors, depression of the upper node and irritation of the lower node may play a part in ventricular escape in a single case, as in an instance reported, in the production of which digitalis apparently was the important factor Three cases are recorded in which the ventricular rate exceeded that of the auricles

42 **Transient Auricular Fibrillation**—Four cases are described by Krumbhaar in which the transition of the cardiac mechanism was observed from normal rhythm to auricular fibrillation and back again In two others the development of permanent auricular fibrillation was observed

Archives of Pediatrics, New York

August XXXIII No 8

43 Nature, Manner of Conveyance and Means of Prevention of Infantile Paralysis S Flexner, New York—p 562
44 Acute Poliomyelitis Clinical Types of Disease H Koplik, New York—p 575
45 Importance of Present Epidemic of Poliomyelitis H Emerson, New York—p 584
46 Abortive and Non Paralytic Cases of Poliomyelitis—*Their Importance* and Their Recognition G Draper, New York—p 590
47 Present Epidemic of Poliomyelitis, Types Which It Presents L C Ager, Brooklyn—p 592
48 Laboratory Aids in Diagnosis of Poliomyelitis J B Neal, New York—p 595
49 Orthopedic Observation in Treatment of Anterior *Poliomyelitis* C Wallace, New York—p 599
50 Treatment of Acute Stage of *Anterior Poliomyelitis* M H Bass, New York—p 611

Boston Medical and Surgical Journal

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51 Diagnosis and Management of Vasomotor Disturbances of Upper Air Passages J L Goodale, Boston—p 181
52 Asthma in Children, II Its Relation to Anaphylaxis F B Talbot, Boston—p 191
53 Preparation of Vegetable Food Proteins for Anaphylactic Tests R P Wodehouse, Cambridge, Mass—p 195
54 *Normal Reaction of Skin to Stroking E A Tracy, Boston—p 197
55 Protein Extracts in *States of* Hypersensitization H M Bater and C Floyd, Boston—p 199
56 *Hay Fever Its Treatment With Autogenous Vaccines and Pollen Extract L S Medalia, Boston—p 201
57 Embolic Pneumonia Following Mastoid Operation, Report of Three Cases G L Richards, Fall River, Mass—p 206

August 17, No 7

58 Fractures of Lower End of Humerus W E Ladd, Boston—p 220
59 Massachusetts Tuberculosis Dispensaries and Their Relation to Practicing Physicians J S Hitchcock, Northampton, Mass—p 225
60 Year's Work of a Local Tuberculosis *Hospital* A C Getchell, Worcester, Mass—p 229
61 *Suggestion as to *Prevention* of Infantile Paralysis W S Whittemore, Cambridge, Mass—p 231
62 Pre Operative Roentgenologic Examination in Cancer of Breast J W Lane, Boston—p 232
63 *Auricular Standstill *An* Unusual Effect of Digitalis on the Heart, with Especial Reference to the Electrocardiogram P D White, Boston—p 233

54 **Reaction of Skin to Stroking**—The phenomenon observed and here reported of the normal reaction of the skin to mechanical irritation produced by stroking with a wooden instrument and consisting of vasodilatation brief in duration, followed by vasoconstriction, long lasting Tracy holds is caused by a double nerve mechanism, one for vasodilatation (automatic) and one for vasoconstriction (sympathetic), together with at least two hormones in the blood stream, the hormone X (Eppinger and Hess' "Autononym") activating the vasodilatation mechanism the other hormone, epinephrin (or analogue, inciters of sympathetic nerve endings), activating the vasoconstriction nerve mechanism

56 **Treatment of Hay-Fever**—The bacteria found in the secretions of the nose and eyes of hay-fever patients previous to their attacks and during their supposed healthy condition are markedly suggestive of the important role played by such bacteria in this disease The presence of the bacteria and their products, Medalia believes is the determining factor between individuals being susceptible to hay-fever or not, since they may be in a measure, responsible for the breaking up of the pollen, setting free the albumins and thus causing pollenosis

The bacteria infection, although secondary to pollenosis, is apparently responsible for the difference between pollenosis, producing a mere transient sneezing or true hay-fever attacks with all their accompanying symptoms The good results obtained by the use of autogenous vaccines still further suggest the important relation of bacteria to this disease The mechanism underlying pollenosis, with its accompanying anaphylactic symptoms, is still an open question

The recent developments in the physical mechanism of anaphylaxis can be applied to this disease The antiferments being absorbed by the liberated pollen albumins, the symptoms are then produced by the free ferments, which are normally present in the system, but unable to produce toxic symptoms because of the action of the antiferments These free ferments produce the anaphylatoxins, and they in turn produce the anaphylactic symptoms of hay-fever, which resemble so closely anaphylaxis due to other sources The underlying reason for the success of the treatment with autogenous vaccine in this disease is due to the fact that the infection is due, in practically all the cases to the staphylococcus group of organisms

61 **Prevention of Infantile Paralysis**—About a year ago, Hektoen and Rappaport published a report on the use of kaolin to remove bacteria from the nose and throat For the past year, Whittemore has been using kaolin powder as a routine in the treatment of nose and throat infections It apparently cleared up these infections very promptly, and, moreover, was not irritating, but distinctly soothing in its effects He sprays it on the mucous membrane of the throat by means of the powder blower He urges the use of kaolin as a prophylactic measure in the case of every child or adult who has come in contact with any possible source of infection with infantile paralysis

63 **Auricular Standstill**—Three cases of heart disease are described by White in which electrocardiagraphic evidence of auricular activity was abolished by digitalis As soon as the effects of the digitalis had worn off, the auricular deflections reappeared This is a rare result of digitalis administration

California State Journal of Medicine, San Francisco

August XIV No 8

64 Passing of the Bone Plate P S Campiche, San Francisco—p 310
65 Contracture of Vesical Neck Diagnosis and Treatment A B Cecil Los Angeles—p 311
66 Congenital Pyloric Stenosis A Weeks San Francisco—p 317
67 Preliminary Tests of Blood in Transfusions S H Hurwitz San Francisco—p 318
68 *Leukopenia Its Relation to Bronchitis J H Catton, San Francisco—p 320
69 Prospects of Surgical Treatment in Meningitis H C Naffziger, San Francisco—p 322
70 Treatment of Diphtheria G E Ebright San Francisco—p 324
71 Psychogenic Factors in Organic Diseases C W Mack, Livermore, Calif—p 325
72 New San Francisco Hospital R G Broderick, San Francisco—p 331
73 Epidemic Cerebrospinal Meningitis W B Smith, Los Angeles—p 333

68 **Leukopenia, Its Relation to Bronchitis**—A careful consideration of the infectious etiology of bronchitis prompts Catton to suggest the division of infectious bronchitides into elective and nonelective types and, after a study of the leukocyte pictures in the infections which are associated with the elective type of bronchitis—the suggestion is offered that there is a definite relation between this affection on the one hand and a disturbed leukocyte balance, i e, a tendency toward decrease in the number of granular cells and increase in the number of hyaline ones Elective infection of the bronchi may occur in measles, malaria, influenza, pertussis, typhoid and tuberculosis, and less frequently in German measles, smallpox, typhus, syphilis and scarlet fever A reduction absolute or relative in the number of polynuclear leukocytes is characteristic of the above infections excepting smallpox and scarlet fever A reduction absolute or relative in the number of polynuclear leukocytes may occur under certain conditions in smallpox and scarlet fever

Delaware State Medical Journal

April VII No 5

74 Uterine Fibroids H J Stubbs Wilmington, Del—p 2
75 Giant Renal Calculus J A Draper, Wilmington, Del—p 5

Georgia Medical Association Journal, Augusta

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76 Cystoscope As An Aid to Diagnosis E P Merritt, Atlanta, Ga—p 65
77 Practical Cystoscopy A L Fowler, Atlanta, Ga—p 66

Medical Record, New York

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78 Dogmatic Physiology J A Gilbert, Portland Ore—p 311
79 Recent Medical Observations in European War Zone J A Nydegger—p 318
80 Bonime s Modification of Koch's Treatment of Tuberculosis R C Newton Montclair N J—p 320
81 Relation of Tuberculosis of Bronchial Glands to the Diagnosis of Tuberculosis of the Lungs M E Lapham, Highlands, N C—p 324
82 New Method of Extirpation of the Lacrymal Sac Without Resultant Scar J A Kearney, New York—p 326
83 Control of the Next Epidemic of Infantile Paralysis F Robbins, New York—p 328
84 Epidemic Poliomyelitis H B Sheffield New York—p 330
85 The Rice Diet How to Prepare and Eat It H S Bartholomew New York—p 331

Military Surgeon, Washington

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86 Some Medical Department Problems of Over Seas Garrisons R G Ebert, U S Army—p 111
87 Experiences and Lessons of War Service in Serbia W A Jolley, N G Colo—p 120
88 Experiences at Red Cross Auxiliary Naval Hospital of Hamburg Germany During First Eight Months of Present War H G Beyer U S Navy—p 134
89 Preparing Medical Reserve Corps of Army L D Frescoln, U S Army—p 146
90 Duties of Medical Supply Officers and Their Methods (To be continued) H I Raymond and E P Wolfe U S Army—p 150
91 Laying Out Field Hospital W W Reno U S Army—p 156

Modern Hospital, St Louis

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92 Systematic Health Service for Employees L K Frankel, New York—p 87
93 Present Scope of Welfare Work in Iron and Steel Industry T Darlington, New York—p 91
94 Provision for Medical Care Under Health Insurance. A Lambert New York—p 95
95 Illinois Central Railroad Opens New Hospital R. E Schmidt Chicago—p 98
96 Industrial Welfare Work Factor in Modern Management J M Eaton Detroit—p 104
97 Youngstown Sheet and Tube Company s Hospital. R. J Kaylor Youngstown Ohio—p 109
98 Cloak Suit Skirt Dress and Waist Industries G M Price New York—p 111

99 Welfare and Efficiency Achieved at Same Time W H Walsh, Boston —p 115
100 Looking Beyond Door of Welfare Service in Deparment Store A K Walker, New York —p 119

Philippine Journal of Science, Manila

January, XI, No 1

101 **Preservation of Human* Serum for Wassermann Reaction E H Ruediger —p 1
102 Case of Infestation With Dipylidium Caninum M P Mandoza Guazon —p 19
103 Hemolysis by Human Serum E R Ruediger —p 33
104 *Experimental Study on Use of Apomorphin to Remove Foreign Bodies from Respiratory Passages D de la Paz and F Garcia —p 51

101 **Preservation of Human Serum** — Formaldehyd, Ruediger says, is not a suitable preservative for serum intended for the Wassermann reaction Serums that gave moderately positive results before liquor formaldehydi was added gave negative results, or nearly negative results, a week after the liquor formaldehydi had been added Glycerin kept the serums sterile and did not noticeably influence the Wassermann reaction or the Tschernogubow modification of the Wassermann reaction Unheated, old serums were strongly anticomplementary Fresh serums that were heated to 55 C for thirty minutes before they were mixed with glycerin did not become anticomplementary in eleven days Fresh serums that were heated to 55 C after they had been mixed with glycerin were anticomplementary on the eleventh day after the heating Nearly all unheated serums that were mixed with glycerin and were kept at room temperature became permanently anticomplementary Anticomplementary serums could be tested provided the amboceptor was increased The anticomplementary property did not alter the result obtained with the Wassermann reaction or with the Tschernogubow modification of the Wassermann reaction A mixture of equal parts of glycerin and serum was slightly anticomplementary as compared with the serum alone

104 **Apomorphin to Remove Foreign Bodies from Bronchi** —The results reported by the authors point conclusively to the impossibility of removing foreign bodies from the trachea by the use of apomorphin It seems, moreover, that a foreign body in the respiratory passages below the larynx may, in reality, be driven farther in during the early stage of vomiting because of the descent of the diaphragm and closure of the glottis, which in turn give rise to the rarefaction of the air in the thoracic cavity and a rushing of the air into the deeper portion of the lungs When tenacious mucous plugs are present in the bronchioles, this may be more than counterbalanced by the stimulating effect of apomorphin on the secretion and peristalsis of the bronchioles, which may loosen and facilitate the expectoration of plugs after vomiting

Tennessee State Medical Association Journal, Nashville

August, IX, No 4

105 Significance of Retinal Changes in Cardiorenal Vascular Disease F P Calhoun, Atlanta, Ga —p 151
106 Retrodisplacements of Uterus Indications and Contraindications for Employment of Pessary, Barrett, and Baldy Webster Operations W T Black, Memphis —p 155
107 *Tumors of* Female Breast J L McGehee, Memphis —p 160
108 Production of Sexual Sterility from a Gynecologic Standpoint G R West —p 166
109 Fourteen Cases of Trachoma or Granular Lids Treated with Bacillus Bulgaricus J P Crawford, Nashville —p 170
110 Plea for Better Prophylactic Measures for Prevention of Specific Infectious Diseases of Childhood J T Moore, Algood, Tenn —p 177
111 Report *of* Two Gunshot Cases W F Clary, Memphis —p 179

Texas State Journal of Medicine, Fort Worth

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112 Pellagra K H Beall, Fort Worth, Tex —p 170
113 Some Views on Oxidase Activity *in* Pellagra G D Fairbanks, Brownsville, Tex —p 173
114 Some Thoughts on Pellagra I L Van Zandt, Fort Worth, Tex —p 175
115 Epidemiology of Pellagra *E M Parrish*, Dallas, Tex —p 177
116 Food in Health and Disease Some Recent Advances in Our Knowledge C Lovelace, Waco, Tex —p 180
117 Typhus Fever Prevention and Control C C Pierce, San Francisco —p 182
118 Endemic Typhus Fever *in South Texas* H L McNeil, Galveston, Tex —p 188
119 Blood Vessel Suture, Report of Cases C H Harris, Fort Worth, Tex —p 191
120 Local Anesthesia A *Jacoby, Dallas,* Tex —p 194
121 Increasing Usefulness *of Nerve Blocking* or *Regional* Anesthesia A O Singleton, Galveston, Tex —p 195

West Virginia Medical Journal, Huntington

August, XI, No 2

122 Value of Morbidity and Vital Statistics S L *Jepson,* Charleston, W Va —p 37
123 Bronchial Asthma A H Griggs, Eccles, W Va —p 40
124 Our *Schools for Nurses*, Past and Future J M Sites, Martinsburg, W Va —p 59

Wisconsin Medical Journal, Milwaukee

August, XV, No 3

125 Management of Emergency Surgical Case E A *Smith,* Milwaukee —p 69
126 Deep Suppurations of Neck Report of an Extraordinary Case J H Fowler, Lancaster, Wis —p 74
127 A Family with *Interesting Eyes* W N Linn, *Oshkosh,* Wis —p 79
128 Goiter J K Chorlog, Madison —p 80

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Medical Journal, London

July 29 II, No 2900

1 **Two Hundred Consecutive Hysterectomies* for Fibroids Attended with Recovery J Bland Sutton —p 133
2 Trench Fever T S Wright —p 136
3 Pathogenicity of Giardia (Lambia) Intestinalis to Men and Experimental *Animals* H *B* Fantham and A Porter —p 139
4 Bacillary *Dysentery* (Shiga) *Contracted in England* P L Sutherland —p 142
5 The Curve of An Epidemic J Brownlee —*p 142*
6 Importance of Technical Details in the Preparation of a Transparent Blood Agar for the Cultivation of the Meningococcus D J Lloyd —p 143
7 Duration of Bilharziosis in South Africa F G Cawston —p 144

August 5, No 2901

8 Disabilities of the Knee Joint R Jones —p 169
9 Treatment of Gas Gangrene by Intravenous Injection of Hypochlorous Acid J Fraser and H J Bates —p 172
10 Convalescent Paratyphoidal and Dysenteric Cases From the Preventive Standpoint I W Hall, D C Adam and R E Savage —p 174
11 *Treatment of Scabies by Sulphur Vapor J Bruce and S Hodgson —p 177
12 *Economical Use of Solutions of Costly Alkaloids for* Ophthalmic Purposes N B Harman —p 178

1 **Hysterectomy for Fibroids** —Time, *says* Bland-Sutton, has amply vindicated the surgical treatment of uterine *fibroids by proving that no physiologic evil attends the* loss of the uterus Coincident with this improvement in the mortality rate there has been a marked diminution in the sequelae Among the 200 hysterectomies reported, 188 were subtotal Hysterectomy has been performed for adenomyoma fibrosis uteri, cancer, and septic infection, during the period covered by the 200 cases of fibroids the subject of this report All the patients recovered, also three with ovarian fibroids and four abdominal myomectomies These results have been obtained with a minimum use of antiseptics The skin of the abdomen is painted with tincture of iodin an hour before operation The cut surface of the cervical stump is swabbed with *the tincture* Sterilized silk is used exclusively for ligatures and sutures The surgeon, assistants, and nurses wear sterilized rubber gloves After the closure of the cervical stump, the gloved hands are thoroughly rinsed with a solution of mercury perchlorid (1 in 5,000) The abdominal incision is then secured with sutures, and the line of the incision, as well as the adjacent skin, lightly painted with tincture of iodin No dressings are used The house surgeon submits all patients set down for operation to a systematic examination Women with uterine fibroids who show signs of diabetes, exophthalmic goiter, cardiac disease, arterial *sclerosis, and albuminuria* are rarely submitted to hysterectomy Bland-Sutton recommends to eschew textbook

descriptions of hysterectomy He advises to learn the technic by assisting a surgeon of experience

11 **Sulphur Vapor for Scabies**—The method employed by Bruce and Hodgson is as follows The patient is given a hot bath, allowed to soak for five minutes in the water, then is well rubbed with soap—either soft or ordinary yellow bar—and the skin scrubbed to open the burrows The patient is then transferred to a cabinet constructed on the lines of a 'home Turkish bath" A wet towel is applied around the neck to prevent escape of fumes a sulphur candle placed in the corner of the box is lighted and the door closed An orderly must remain constantly in attendance so as to remove the patient at once should he show signs of faintness or develop any difficulty in breathing from escape of fumes At the end of fifty minutes the lid is quickly removed and the patient returns to the bathhouse, where he puts on clean and warm clothing Sufficient air to keep the candle burning will find its way through the cracks around the floor The authors have treated over 200 cases, and have had about 2 per cent returns, and in these cases they think some article of clothing had escaped disinfection and thus reinfected the patient The cases giving the best results were those which had not been under any other treatment The great merit of the treatment is that cases can be returned to their unit on the same day as received and resume duty next day

Journal of Obstetrics and Gynecology of British Empire, London

June-August 1915 XXVII Nos 6 7 and 8

13 Chronology of the Founders of the Obstetric Forceps (1569 1799) A. Doran—p 154
14 Frequency of Puerperal Eclampsia in Trinidad Analysis of 22 Consecutive Cases R Scheult—p 173
15 Clinical Aspects of Double Uterus M Handfield Jones—p 186
16 *Case of Fatal Rupture of Bladder During Puerperium F M Huxley—p 195
17 Three Cases of Labor Obstructed by Ovarian Cyst. W Salisbury—p 197

16 **Bladder Rupture During Puerperium**—On the ninth day while nursing her baby on the left arm, Huxley's patient made a sudden stretching movement of the right arm to pick up something from the floor She was at once attacked with violent abdominal pain collapse and vomiting The patient looked extremely ill the face was pale, the tongue dry and bright red, the extremities cold and clammy, temperature 102 2 F, pulse running The abdomen was very markedly distended symmetrical, and moved on respiration It was neither very rigid nor very tender There was dulness over the symphysis pubis and in the flanks and the presence of free fluid was determined The patient stated that she had passed no urine since the onset of the acute illness (about thirty hours) so was catheterized, 40 ounces of acid, somewhat offensive, urine being withdrawn Catheterization was repeated at 8 a m the following morning and 35 ounces of urine withdrawn In spite of stimulant treatment the patient s condition became gradually worse, and she died early in the afternoon of the second day On opening the abdomen an odor of urine was noticed and ⅔ pint of turbid urine and peritoneal exudate escaped In the hypogastric region the bladder was adherent to the anterior abdominal wall and the posterior part of its fundus adhered lightly to the anterior surface of the uterus The whole bladder wall was very thin the organ having obviously been in a state of considerable distention At the summit of the fundus of the bladder was a horizontal slit 2½ inches in length through which the urine had escaped The edges of the slit were jagged and sharp and showed no signs of sloughing nor of bruising Signs of general peritonitis were present

Lancet, London

July 29 II No 4848

18 *Laparotomy for Gunshot Wounds of Abdomen G H Stevenson and C Mackenzie—p 173
19 Advantage of Using a Broth Containing Trypsin in Making Blood Cultures S R Douglas and L Colebrook—p 180
20 Treatment of Carriers of Amebic Dysentery Use of Double Iodid of Emetin and Bismuth H. H Dale—p 183
21 Necessity for Prolonged Treatment in Cases of Infantile Paralysis. F Hernaman Johnson—p 185
22 Six Cases of Wounds of Buttock with Perforation of Intestine R B Blair—p 186
23 Serious Defect in Some Registered Hospitals for Insane H Rayner—p 196

August 5 No 4849

24 *Serum Reactions of 300 Unselected Cases of Enteric Fever F Glynn and F C Lowe—p 222
25 Acute Intestinal Obstruction G F Aldous—p 227
26 Immobility After Joint Injury J Collie—p 228
27 Extraction of Bullet From Middle Mediastinum L E Barrington Ward—p 230
28 Cessation of Tachycardia on Outbreak of Spontaneous Perspiration T Oliver—p 231

18 **Laparotomies for Gunshot Wounds of Abdomen**—Stevenson and Mackenzie give the results of fifty laparotomies on gunshot wounds of the abdomen performed at a casualty clearing station, about 5½ miles from the nearest front line trenches Many of the patients were operated on within five or six hours of their being wounded, many others, however, did not reach the station for twelve to twenty-four hours The technic of the operation done differed little from that in the similar operation of civil practice As a general rule, morphin and atropin are administered hypodermically before operation They do not usually give saline beforehand relying on subcutaneous and intravenous injection during and after the operation The "iodin" method is used for the preparation of the skin, except in those cases where the wounds involve a large area when, after anesthetization, the patients are prepared with some phenol preparation, usually lysol They invariably endeavor to excise completely both the entrance and exit wound, using, of course, a different set of instruments from those employed in the actual laparotomy Warm ether is the anesthetic used most frequently Patients are operated on as quickly as possible The abdomen is usually opened either in or near the middle line The wounds in the intestine are sewn up with fine thread in two layers End-to-end anastomosis is the usual method employed when resection is necessary, except in those cases where several feet of intestine have to be removed, when lateral anastomosis is employed Wounds of the liver and spleen are usually packed, occasionally it is possible to suture them In those cases where the kidney is badly pulped, complete removal is indicated, in those where the wound is slight the kidney may apparently be left without much danger, and urinary fistulae usually heal up quite well The intestine is carefully washed with saline while outside the abdominal wound and all fecal material and doubtful lymph gently sponged off The abdominal cavity is also thoroughly washed out with saline or hypochlorous acid and mopped dry Some cases seem to benefit from a quantity of saline being left in the peritoneal cavity In grossly infected cases they have also tried the injection of ether into the peritoneal cavity In their opinion the shock produced does not warrant a continuance of this procedure, although it has given good results in cases where the infection has been localized, as in appendix cases Large drainage tubes are inserted into the pelvis, and the flanks as well it the cavity is badly infected The abdominal wound is stitched in layers During the operation continuous saline is given by means of Lane s bags, and frequently an intravenous infusion is given in addition The results give a recovery rate of 34 per cent

24 **Serum Reactions to Typhoid**—The serum reactions to typhoid paratyphoid A, and paratyphoid B of 300 consecutive recently convalescent 'enterics were tested by Glynn and Lowe by Dreyer's technic After making about 3,000 tests of these and other cases they find the emulsions most satisfactory Control sera of soldiers inoculated against typhoid, but suffering from dysentery or surgical diseases, failed to agglutinate either paratyphoid emulsions but the serum of every convalescent, twelve in all excreting paratyphoid A or paratyphoid B bacilli agglutinated the corresponding emulsion only in titres ranging from 25 to 250 One hundred and ten or 37 per cent of the cases tested agglutinated paratyphoid emulsion, 36 agglutinated paratyphoid A (titer from 25 to 250) and 74 paratyphoid B (titer from 25 to 2 500) Twenty-eight cases—i e, 9.3 per cent—failed to agglutinate typhoid, paratyphoid A, or paratyphoid B 1-25 when tested

about seven weeks after the onset of convalescence, all but 2 had been inoculated against typhoid One hundred and sixty-two cases agglutinated typhoid alone, and were examined on the average eight weeks after the onset of convalescence Of 153 examined at least twice 11 showed a marked fall or rise in titer, demonstrating that almost all, if not all, had a recent typhoid infection The diagnosis as "enteric" of cases not suffering from these diseases vitiates treatment and discredits prophylactic vaccination, while those who recover are regarded as potential bacillary carriers, and prevented from returning to active service for months The authors believe that the prophylactic use of mixed paratyphoid vaccines will undoubtedly increase the difficulty of diagnosing paratyphoid, as typhoid vaccine has done in the case of typhoid The difficulty will be greater in those mild cases which occur, especially in the partly protected, where the infecting bacteria cannot be demonstrated

26 **Immobility After Joint Injury**—Collie advises against immobilization of a joint following injury because it is inevitably followed by adhesions, and the longer adhesions are allowed to remain the greater the risk is of permanently impaired function When adhesions have to be broken down an anesthetic should always be given, not so much for the purpose of avoiding pain as of ensuring the complete relaxation of the muscles, otherwise the muscles which will be involuntarily brought into action may be injured by the force necessary to break down the adhesions Sufficient muscular relaxation cannot be obtained by nitrous oxid gas Pain which follows the operation is insignificant and seldom lasts more than an hour Prior to the necessary passive movements of the joint, which should be commenced within a few hours of the operation, the muscle in the neighborhood of the joint should be skilfully massaged It must never be bandaged, and to apply a splint is folly If the joint is not manipulated within twenty-four hours the ruptured adhesions will be reunited The secret of success in all these cases is to give the muscle very light work at first A few days of such treatment will generally suffice to bring the remainder, and to get rid of any pain which the earlier efforts may have caused When this has been accomplished the muscle may be exercised more freely

Archives des Maladies du Cœur, etc, Paris

July, IX, No 7, pp 285 332

29 Aneurysm Complicating Tuberculous Cavity in Lung (L'anevrysme de Pasmussen) M Letulle—p 285
30 *Pathogenesis of Certain Cases of Flint's Cardiac Murmur in Aortic Insufficiency C Pezzi—p 290

30 **Pathogenesis of Flint's Cardiac Murmur**—Pezzi comments on the practical importance of being able to exclude an organic mitral stenosis accompanying aortic insufficiency In the presence of a presystolic sound difficult to interpret properly, a typical cardiogram, which can easily be taken with the patient lying on the left side, will decide the question in the majority of cases The discovery of gallop rhythm supplies an additional element for the prognosis, with special therapeutic indications The Flint murmur is usually a presystolic bruit, symptomatic of gallop rhythm and with the same pathogenesis as the latter The sound is scarcely a "murmur", the French call it a *roulement*, a rumbling

Bulletin de l'Académie de Médecine, Paris

July 18 LXXVI, No 29, pp 35 64

31 Necessity for Adding Open Tuberculosis to List of Notifiable Diseases (Sur quelques lacunes des reglements d'hygiene a Paris) R Wurtz—p 39
32 Virilism and Inversion of Sexual Characteristics Under Dependence of Interstitial Genital Glands R Blanchard—p 47
33 *Local Anesthesia for Operations in the Chest Couteaud and Bellot—p 60
34 Contagious Diseases in Army Corps in 1915 Only a Third of Average in Peace Times (Marche des maladies contagieuses dans un corps d'armee sur le front en 1915) M Boigey—p 62

33 **Local Anesthesia for Operations on the Chest**—Couteaud and Bellot have extracted a projectile from the lungs under local anesthesia in thirty cases, and expatiate on the ease and simplicity with which it can be done It affords better control of pneumothorax, while reducing the operative shock and disturbance to the minimum They had no accidents nor mishaps in any of their thirty cases They flood the field of operation with a weak antiseptic solution, resect ribs and gain access to the lung without dread of operative pneumothorax The wounds were of some standing and the projectile was causing more or less disturbance In eight of the cases the lung was nearly or quite free from adhesions, the projectile was extracted after hooking the lung and bringing it up to the surface and fastening it there

Le Nourrisson, Paris

July, IV, No 4, pp 193 256

35 Milk Sterilized by Heat in Infant Feeding (Resultats de l'emploi du lait sterilise par la chaleur dans l'allaitement artificiel) A B Marfan—p 193
36 *The Prognosis of Tuberculosis in Infants Combe—p 202
37 Importance of Mineral Elements in Infant Nutrition (Role de la substance minerale dans la nutrition normale et pathologique du nourrisson) H Dorlencourt and M Delort—p 211

36 **Prognosis of Tuberculosis in Infants**—Combe says that, while the prognosis is always serious, yet tuberculosis in an infant is not inevitably fatal The outcome depends on the age when infection occurred, the virulence of the infection and the number of opportunities for reinfection, also on the extension and clinical behavior of the lesion If a series of repeated applications of Mantoux' intradermal tuberculin test every two weeks shows that the reaction is growing less each time until it finally dies out altogether, this indicates that the lesion is not producing so much tuberculin as before or else that the body is producing enough antibodies to digest it In either contingency, this Mantoux immunity, as he calls it, may be accepted as a sign of good omen Necropsies show, however, that the tuberculous lesions in infants are always more extensive and more serious than would be surmised from the clinical examination As long as the tuberculosis is restricted to the glands, the disease may progress very slowly or the child may recover But when the gland barrier is broken down, the disease may run its course in a few weeks if the bronchi and lungs become involved, or cheesy pneumonia may drag along for months There is also a very slow form of the disease, developing in the hilus or mesentery, *tabes hilaire* or *mesaraique*, in which the progressive cachexia may not prove fatal for two or three years In the surgical forms the infection develops so slowly that antibodies are produced in progressive amounts, and this autotuberculinization may result in complete immunity and clinical recovery He has had numbers of such cases If this autotuberculinization has occurred before birth or through the milk, before infection becomes installed, the bacilli are unable to produce their usual lesions They may live for years in apparently harmless symbiosis so long as this balance is not upset

Lyon Chirurgical, Lyons

May June, XIII, No 3, pp 405 536

38 *The Healing Process in Open Wounds of the Skull (Le processus de cicatrisation des plaies ouvertes du cerveau) L Beriel—p 405
39 *The Cell Findings with Lumbar Puncture After Wounds of the Skull (Note sur les renseignements cytologiques donnes par la ponction lombaire au cours de l'evolution des blessures du crane) L Levy—p 428
40 Prognosis of Traumatic Aphasia Consecutive to War Wounds of the Skull J Froment—p 434
41 Pathogenesis and Treatment of Early and Persisting Hernia of the Brain (Fungus du cerveau) R Leriche—p 448
42 Macroscopic Lesions of War Wounds of the Spine and Spinal Cord A Latarjet—p 472
43 Functional Value of Nerves in Cicatrix (Note pour servir a l'etude de la valeur fonctionelle des cicatrices des nerfs Recherche des courants derives au cours des interventions) L Beriel—p 500
44 Device to Overcome Radial Paralysis M Goullioud—p 515
45 *Liberation of Nerve Involved in Cicatrix Neurolysis E Duroux—p 518
46 *Protection of Trunk Nerves in Neurolysis (De l'isolement et de la protection des troncs nerveux dans les opérations de restauration des nerfs) P Bonnet—p 529

38 **The Healing Process in War Wounds of the Brain**—Beriel's extensive experience with wounds exposing the brain has demonstrated the surprising fact that *hernia* of the brain

tissue is most liable to occur when the opening is small The dread of hernia can be dismissed with ample trephining as the brain and the dura mater grow together in the healing process, and this symphysis is more complete the more ample the trephining operation This growing together of the brain and dura mater is indispensable for survival The later evolution of this symphysis seems to be a tendency to reabsorption of the cicatricial tissues and reconstitution of the meninges and their interspaces

39 **Lumbar Puncture Findings During the Course of Skull Wounds**—Levy examined the cerebrospinal fluid at regular intervals in fifteen cases of war wounds exposing the brain, comparing the findings with the lesions found at necropsy after a long period of apparent convalescence The first puncture was within a few hours of the injury In every case the high tension and high albumin content of the fluid were accompanied at first by polynucleosis, but this yielded to lymphocytosis as the condition improved This lymphocytosis persisted unmodified then, even when the case took a fatal turn Necropsy disclosed that the meninges are capable of a defensive reaction amounting practically to a local cure But they are not able to oppose an effective barrier to the infection and protect the subjacent nervous tissue They retard but they cannot prevent the development of the encephalitis This tolerance on the part of the meninges explains the lumbar puncture findings, and shows that they are not of much moment for the prognosis The course in the fatal cases could be traced as, first, the meningeal inflammation, and then, as this retrogressed, development of secondary encephalitis below

45 **Neurolysis**—By this term Duroux says he means the 'toilet of the nerve bound down by cicatricial tissue, supplementing the liberation of the nerve with other measures as necessary Paralysis from this incarceration of the nerve is more common among the wounded than paralysis from the nerve's being severed The proportion of the latter in the French hospital seems to be only from 6 to 10 per cent He describes the technic for freeing the nerve, remarking that success depends on the operation being done before the paralyzed muscles become atrophied as is the rule in two or three months The outcome thus depends mainly on the condition of the muscles The abolition of pain and return of sensibility may be counted on in practically every case, but the motor functioning is scarcely modified when the case is too old, or the technic of the neurolysis is defective, or the endeavor to be extremely conservative has been carried too far Three typical cases are described, with illustrations showing the remarkable succes that may be obtained when conditions are favorable

46 **Protection of Liberated Nerve**—Bonnet explains that when a nerve is released from a bed of cicatricial tissue the improvement noted at once is liable to decline as the neurolysis itself induces production of new cicatricial tissue, so that the last state is liable to be as bad as the first In order to prevent this, the nerve must be protected, and he has found a sheath made from a graft of cellular tissue taken from the thigh best adapted for the purpose He has sometimes utilized a sheet of fat tissue from the vicinity of the lesion, but has found it better to obtain the graft from some new field on the body, for reasons which he enumerates Fat tissue not only protects but pads the nerve against new injury The only inconveniences are from the thickness of the graft, which may render it awkward to manage, and the fact that, in the rare cases in which the fat tissue is not tolerated exuding droplets of fat afford an excellent culture medium for germs He has had slight infection of the focus in three cases from this cause Tissue from the sac of a hernia answers better for neurolysis in some cases, but it does not pad the nerve like the fat tissue He never drains for more than two or three days

Paris Médical

July 29 VI No 31 pp 85 100

47 Comparative Ergograph Research on Functional Disability of the Arm After Wounds of Bone or Joint. (Impotences fonctionnelles dues aux lesions osseuses et articulaires du membre superieur) H Nepper and C Vallee.—p 86

48 Working Artificial Hands (Mains de travail pour amputes) Boureau (Tours) —p 92

49 Professional Reeducation of Maimed Soldiers M Perrin—p 96

Presse Médicale, Paris

July 24 XXIV No 41 pp 321 328

50 *Differential Diagnosis of Pulmonary Tuberculosis and Chronic Nasal Affections E Rist—p 321

51 *Treatment of Prolapse of the Uterus A Pascal—p 323

50 **Differentiation of Pulmonary Tuberculosis from Cough Due to a Chronic Nasal Affection or Other Cause**—Rist has encountered a number of cases of cough in which some other affection was mistaken for pulmonary tuberculosis If scarcely any or no signs of a lesion are found in the lung and no bacilli can be detected in the sputum but there is a persisting cough, this may be traced to some heart or kidney trouble Mitral stenosis, in particular, is liable to keep up a cough and induce hemoptysis, and there may be fever with the congestion of the lungs for which this valvular defect is responsible Atony and sagging of the stomach also drag down the patient and may induce coughing Roentgenoscopy clears up such cases and the wearing of a supporting belt brings improvement almost like magic Rist adds that incomplete forms of exophthalmic goiter are frequently mistaken for tuberculosis at first The cough in these cases is dry, fatiguing and very tenacious, and the loss of flesh, sweats, etc, easily lead into error unless the Graefe and Moebius signs are sought for and roentgenoscopy applied with bacteriologic examination

Patients in the foregoing groups are mostly women, when a man has a persisting cough it is very liable to be the result of a chronic nasal affection Few infirmities, he remarks, are so well tolerated as chronic nasal affections He relates that a rhinologist was recently sent back from the front for supposed pulmonary tuberculosis when time proved his clinical freedom from tuberculosis of the lung but revealed that he had an unsuspected purulent nasal affection, long installed The men do not seem to notice that a nostril is obstructed much of the time They hawk in the morning and catch cold easily There may be a cough-producing affection without interference with breathing The lack of resonance in the nasal passages may modify the voice in a characteristic way, readily recognized when once heard Varices may develop at the base of the tongue with tenacious nasal trouble, and simulate hemoptysis Secondary bronchitis is frequent, and this may set up fever along with the cough, but negative roentgenoscopic and bacteriologic findings will exclude tuberculosis Another source of possible error is that the defective breathing leaves part of the lung unventilated

In most of these cases some lurking chronic sinusitis is responsible for the acute and recurring rhinitis and the descending infection of the air passages below The general practitioner must realize that the nasal accessory cavities are frequently the seat of an infectious process whose effects may be felt throughout the bronchial apparatus Removal of some hypertrophied turbinate or polyp or the cure of some chronic sinusitis abolishes at one stroke the cough and other disturbances Even the rhinologists fail to realize that the cough and bronchitis are tributary to the sinusitis Rist declares that many patients of this type are found in the sanatoriums for the tuberculous, and are cited among the 'successes" under tuberculin 'It is easy to cure a man of tuberculosis when he has not got it"

51 **Prolapse of the Uterus**—Pascal gives ten illustrations of the preferable technics for correction of prolapse in women of 40 and in the elderly He emphasizes that whatever method is followed, the flabby muscles must be strengthened afterward by general hygiene and exercises to restore tone in them

Revue de Chirurgie, Paris

March XXXV No 3 pp 337 479

52 *Paralysis of Peripheral Nerves After War Wounds (Des paralysies des nerfs peripheriques dans les blessures de guerre Considerations operatoires—prognostic) E Duroux.—p 337

53 Tardy Extraction of Projectiles in the Lungs Forty Cases Technic for Surgery of the Lung P Duval—p 365

54 *Primary Resection in Treatment of War Wounds of Joints With Fracture (De la resection primitive dans le traitement des coups de feu articulaires avec fracture) G Cotte—p 385
55 Extraction of Aseptic Projectiles in the Knee, Twenty One Cases (Extraction des projectiles aseptiques du genou) G Leo—p 421
56 *The Supraclavicular Lymph Glands Connected With the Breast (Etude anatomique des lymphatiques de la mamelle, au point de vue de l'extension lymphatique des cancers) P Mornard—p 462

52 **Paralysis of Peripheral Nerves Operative Treatment and Prognosis**—Duroux discusses in turn paralysis from the severing of a nerve, from cicatricial "englobement," from neuromas, and from scraps of projectiles, as well as from compression by an aneurysm or fracture, with the best method of treating each He cites typical examples, calling attention in particular to the fine results obtained in a case in which there was a gap of 15 cm between the stumps of the median and ulnar nerves that had been cut with a knife, over six months before The gaps were bridged with two strips of sciatic nerve from the dog, "transplanted with all their perineural cellular atmosphere" as he describes Normal sensibility returned, and the vasomotor and trophic disturbances (blue hand, ulcerations) retrogressed but the man is still unable to bend his fingers quite normally although the wrist can be moved freely in all directions All the evidence confirms the wisdom of restoring the continuity of the nerve, loosening it and bringing the stumps together This can readily be done with a gap of only 2 5 cm If necessary the nerve can be stretched a little or the limb flexed to relax the nerve Success depends on not waiting too long

In case the nerve is bound down by cicatricial tissue, the operation to relieve must deal not only with the cicatricial tissue in which the nerve is embedded but also with the cicatricial tissue within the nerve He treats neuromas on the principle that they represent a contusion of the nerve, slitting them lengthwise to release the strangulated fibers, evacuate effusion and relieve the hypertension which is inevitable when in the focus of a contusion Paralysis from compression by an aneurysm or callus after fracture may retrogress spontaneously, as the aneurysm is evacuated or the callus absorbed He here describes instances of each with spontaneous complete recovery

54 **Primary Resection in Treatment of Gunshot and Shell Wounds of Joints with Fracture**—Cotte reports his experience in this line with the different large joints, discussing the indications and outcome for each in turn It is evident from the forty-nine cases that total resection of the joint offers better conditions for use of the limb later, as this wards off or attenuates infectious processes, and permits early orthopedic treatment which is indispensable in restoring to the utmost the functioning of the wounded limb

56 **The Lymphatics Connected with the Mammary Gland**—Mornard injected a stain into each mammary gland in fifty cadavers of fetuses or young children, and gives fourteen colored illustrations of the five principal types of the chain of lymph glands running up into the supraclavicular fossa His attention was called to the subject by the frequency of recurrence of cancer in this chain of glands. In only twelve of the fifty did the arrangement of the glands on both sides harmonize with the description in the textbooks In 50 per cent there were two pedicles

Archiv fur klinische Chirurgie, Berlin

CVII, 1915, No 1, pp 1 194 Last indexed Feb 19 p 608

57 *Generalized Fibrous Ostitis With Tumors and Cysts (Von Recklinghausen'sche Knochenkrankheit, zugleich ein experimenteller Beitrag zur Aetiologie der Knochencysten) F Lotsch—p 1
58 *War Wounds of the Brain and Their Surgical Treatment (Verletzungen des Gehirns und deren chirurgische Behandlung) W B Müller—p 138
59 *Transplantation of Pectoralis Muscle to Correct Paralysis of the Shoulder Muscles, Two Cases (Ueber Muskelüberpflanzungen am Schultergürtel) M Gerulanos—p 159
60 Technic for Resection of the Stomach (Nochmals zur Technik der Magenresektion) H Finsterer—p 180
61 Technic for Resection of the Stomach (Sachliche Berichtigung zu vorstehenden Bemerkungen Finsterer's) H v Haberer—p 189

57 **Generalized Fibrous Ostitis**—Lotsch devotes fifty pages to detailed reports of thirty-seven cases on record of the generalized bone disease to which von Recklinghausen first called attention as "fibrous ostitis with tumors and cysts" Lotsch further reports a case from his own experience and discusses all phases of the affection in question He says that we can accept it now as established that the morphologically evident primary process is a proliferating and destructive fibrous metamorphosis of the bone marrow In other words, the normal fat marrow and the blood-producing marrow are crowded out by proliferation of the connective tissue stroma, a marrow fibrosis Everything else, the changes in the bone the tumors, the cavities from softening of bone tissue—all these are but secondary

Pain is the first symptom, but it may be long retarded in children and the elderly, their bones yielding more readily The pathologic fractures with this disease may occur with physiologic trauma The periodic aggravations and remissions are likewise pathognomonic The deformity of the bones may resemble that with Paget's disease of the bones There are also many points of analogy and resemblance between this fibrous ostitis and puerperal osteomalacia In twenty-eight of the cases on record the age is mentioned, each decade from birth to 40 is represented by from five to seven cases In nineteen cases the disease had been manifest from four to twenty-four years before death, and in nine still surviving the duration has been from four to twenty years In Lotsch's personal case the disease had commenced thirty-two years before

Among the total thirty-seven cases all but nine were in girls and women This predilection for the female sex is another point which distinguishes von Recklinghausen's from Paget's disease of the bones, and brings it nearer to true osteomalacia Roentgen examination is the sovereign diagnostic measure Treatment seems to be powerless to arrest the disease The favorable outcome after resection of a solitary bone cyst cannot be anticipated in this generalized type If enough bone shell is left after scraping out the diseased bone marrow, the cavity grows up fast owing to the regenerating power of the periosteum which does not seem to suffer in this disease But, in the generalized form, it continues its ravages at other points However, extreme painfulness or crippling may justify intervention at some point Phosphorus, arsenic and calcium salts have never proved really successful To give lime in rachitis seems reasonable to supply the lime hunger of the newly formed bone But with fibrous ostitis the lime is cast out of bones that previously contained it Any intake of lime by the mouth would merely increase the amounts of lime being eliminated in the urine or it would pass through the intestines unabsorbed

Syphilis has been suggested as an important factor in fibrous ostitis, but the Wassermann test was negative in the later cases—the only ones in which it was applied—and nothing suspicious of syphilis was found at necropsy in any of the cases examined postmortem It is now probable that some upset in the balance of the internal secretions is responsible No other supposition has proved tenable to date In conclusion, Lotsch describes experiments on fifty-one tibias in twenty-six rabbits, aiming to induce the production of a cyst The experiments were all failures, so far as this was concerned, but they demonstrate anew and beyond question that a hematoma in the marrow cavity, even after removal of most of the bone marrow, never seems to entail a cyst-like cavity A purely traumatic origin for bone cysts must therefore be rejected The article fills 137 pages and is profusely illustrated, with a bibliography of 157 titles

58 **Wounds of the Brain**—Muller advocates prompt and extensive operative intervention in all wounds of the brain, saying that a large proportion of the men that live to reach the hospital can thus be saved The fear of meningitis should not deter from ample operative measures, every scrap of a projectile or bone splinter should be removed, and where a focus of softening or an abscess has already formed in the brain it should be drained Among his twenty-five cases of tangential wounds, from a glancing projectile, there were

only two deaths In one of the fatal cases the meningitis was far advanced when the man was brought in The other fatal case emphasizes the importance of removing every splinter of bone as otherwise they may entail local softening of the brain He says of the contrecoup that the impact on the other side of the skull may induce a patch of softening

59 **Transplantation of a Muscle Flap in the Shoulder Girdle**—Gerulanos is professor of surgery at Athens and he here relates two cases of paralysis of the serratus muscle which he corrected by transplanting the pectoralis muscle In the first case the paralysis was of traumatic origin the injury occurring while felling a tree The second patient was a young woman The shoulder muscles on both sides had gradually become paralyzed and the transplanting had to be done on both sides A substitute for the trapezius muscle was also provided by muscle tissue from the sacrolumbalis Both cases are described in detail, with fourteen illustrations to show the fine functional results attained, two and five years after operation The woman was operated on at four sittings in the course of a year

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 22 XLVI No 30 pp 929 960

62 A Study of Biologic Psychology (Gefuhl Gesittung und Gehirn) K. v Monakow —p 929

Gazzetta degli Ospedali e delle Cliniche, Milan

July 20 XXXVII No 58 pp 897 912

63 *Mercuric Chlorid in Treatment of Acute Articular Rheumatism (Patogenesi e cura del reumatismo articolare acuto) A Fan toni —p 899

July 23 No 59 pp 913 928

64 *Retrograde Dilatation of the Cardia in Case of Impassable Cicatricial Stenosis A Franchini —p 916

63 **Mercury in Acute Rheumatism.**—Fantoni acknowledges the benefit from the salicylates in febrile articular rheumatism but insists that this does not reach the root of the trouble while the harm it often does may counterbalance the good He presents considerable evidence to show that acute articular rheumatism is not a disease entity but a uniform manifestation resulting from a special mode of action of a number of pathogenic micro-organisms in given conditions of attenuated virulence and suitable organic environment This assumption is confirmed by the number of micro-organisms which have been cultivated from cases of acute articular rheumatism and by the fact that Ghedini obtained positive responses to deviation of complement tests made with the diplococcus gonococcus streptococcus and staphylococcus and the influenza bacillus alone or associated The test was positive for one or more of these germs in every case Another fact substantiating the assumption is the effect of treatment Maragliano asserts that the salicylates act exclusively on the temperature and the pain and Fantoni reiterates that they do not shorten the course of the disease The salicylates given even from the very first, do not abort the disease nor check its progress from one joint to another or to the endocardium Their action is undoubtedly specific, he says so far as it goes but it does not go far enough, its action is incomplete

The aim in treatment should be to inject directly into the blood some drug which confers on the serum bacteriolytic antitoxic and agglutinating properties while increasing the number of mononuclear cells in the blood The serum thus modified has a destructive action on whichever of the ordinary germs may find their way into the system He says that the drug which will accomplish this transformation of the blood serum into a polyvalent vaccine, as it were is mercuric chlorid in minute doses from 1 to 5 mg in the twenty-four hours Intravenous injection of these small doses realizes a series of biologic effects which amount in the sum total to immunity Mariani of Genoa has had the greatest experience in this line in Italy and his enthusiasm led Fantoni to apply this method of treatment in four cases which he describes in detail In one case this was the fourth recurrence of the disease, the other attacks had lasted from thirty to forty-five days under the salicylates Under the mercuric chlorid the patient soon showed marked improvement and was able to be up the tenth day, and there has been no tendency to recurrence since His dose was 0 003 gm on three successive days and 0 004 gm on alternate days later, a total of six or seven of these intravenous injections He says that this treatment is certainly harmless, and he did not hesitate to apply it even when the kidneys were a little below par Of course serious kidney disease contraindicates it He gives it by intravenous injection of 3 c c of a 1 1 000 solution of mercuric chlorid

64 **Retrograde Dilatation of the Cardia**—The patient was a man of 27 and except for rachitis and measles he had no pathologic history until the age of 20 when symptoms suggested a probable gastric ulcer His condition then improved for a time but he had difficulty in passing the food into the stomach He said it seemed to stick high up in the esophagus, and the sound felt an obstruction at two points, one quite low and the other high the lower one becoming absolutely impassable in time The stomach was opened at two sittings and the stenosis gradually dilated with flexible Benique sounds progressing from No 1 to No 30, curing the patient completely from all further trouble from this source The fistula into the stomach was kept open for seven months The retrospective diagnosis was cicatricial stenosis from an ulcer in the region of the cardia plus reflex spasmodic contraction of the esophagus higher up The introduction of the larger sounds from below sometimes started reflex vomiting, but it stopped as soon as the instrument was removed When No 30 was reached in the series, the dilatation was continued by way of the mouth

Policlinico, Rome

July 16 XXIII No 29 pp 893 920

65 *Continuous Horizontal Bath for Wounded Leg (Infezione settiche negli arti feriti e nuovo bagno in posizione orizzontale per com batterle) G Ingianni —p 893
66 Primary Diplococcus Cerebrospinal Meningitis T Pontano —p 900
67 Organization of the Roentgen Ray Service in the Field (Appunti e considerazioni sulla radiologia da campo Organizzazione generale dei servizi) E Grego —p 902

July 23 No 30 pp 921 942

68 Localization of Projectile by Displacing Roentgen Tube Horizontally for Ten Centimeters. (Un facile metodo di localizzazione dei proiettili Applicazione nuova di principi vecchi) D Bocciardo —p 921
69 To Reduce the Amount of Mutilations (Per limitare le mutilazioni) T Pontano —p 923
70 *Legislation on Workmen s Compensation (Per la moralizzazione della legge sugli infortuni del lavoro) A Ranelletti —p 926

July Medical Section No 7 pp 193 280 Guido Baccelli Number

71 Baccelli as Citizen and Teacher A Murri —p 193
72 Baccelli as Clinician E Maragliano —p 217
73 Baccelli as Statesman and Leader in Social Medicine G Sanarelli —p 263

65 **Horizontal Bath for the Leg**—Ingianni has been using for some months a light bathtub long enough and deep enough for the leg to rest in it as it enters at one end the limb thus submerged from the toes to the hip as the man lies in bed This permits a continuous laving of the wounds on the leg with some antiseptic fluid He has been making a practice for a year of this system of continuous laving for the arm and found the results so excellent that he has devised the horizontal bathtub on the same principle The opening for the leg is made very large, with a waterproof cuff that fits tight enough around the leg to prevent leaking of the water but not tight enough to interfere with the circulation The mattress below this point is cut out. The tub can be made of metal glass or wood or be merely a portable frame for a rubber-cloth tub Since he has adopted this principle in treating war wounds of the extremities he has not had to amputate either an arm or leg even in 95 cases of frozen feet with more or less extensive gangrene, in seventeen cases of compound fracture of the bones of the leg from gunshot or shell injury with suppuration, sixty cases of compound fracture of the bones of the arm and nineteen of the elbow In the latter group amputation seemed inevitable as also in the cases of frozen feet He has rings soldered to the inside of the bathtub at the foot to permit extension of the limb while it is in the continuous bath, weights and pulleys per-

mitting graduated traction By keeping the limb soaking in the antiseptic fluid for five or six hours a day, or even twice this, enough of the antiseptic is absorbed to have a general action on the infection while the fluid permeates the remotest crevices of the wound, cleanses and sterilizes In short, he declares, "the effect of this prolonged bath is marvelous" It does not interfere with the natural circulation in the least The fluids he has been using for the continuous bath are a 3 per cent solution of hypochlorite or a ½ 1,000 solution of mercuric chlorid, a 1 1,000 solution of potassium permanganate, iodized water or physiologic solution It is generally better to alternate the use of these antiseptics in turn, the mercuric chlorid always proved most effectual in the septic cases The article is illustrated

70 **Workmen's Compensation Legislation** — Raneletti declares that the principle of compulsory treatment must be introduced into legislation on workmen's compensation At present there is no authority to compel the injured to submit to proper treatment and complete the whole course Precious time and opportunity are lost far too often Only for workers in the sulphur mines does the law insist that the injured must obey the directions of the physicians connected with the works If the victims of industrial accidents knew that they would forfeit their indemnity if they refuse to submit to and follow the doctor's directions, a new era would dawn for industrial accidents, and the compensation would acquire a just basis He suggests another point which might be borne in mind in future legislation on disability, sickness and old age insurance, namely, that the old age pension should be increased or diminished according as the individual has made slight or considerable demands previously on the treasury

Siglo Medico, Madrid

July 15, LXIII, No 3266, pp 449 464

74 Principles for General Anesthesia (Advertencias utilisimas sobre la anestesia general) D C Calleja —p 452
75 *Constitutional Asthenia S de Santa Maria —p 458
76 When Called in Consultation (Las consultas medicas) J Allen —p 459 *Commenced in No 3265*

July 22, No 3267, pp 465 480

77 Microscopic Study of Red Blood Corpuscles F Mas y Magro — p 466 Conclusion follows

75 **Constitutional Asthenia** —Santa Maria has been studying the Becher-Lennhoff index of constitutional asthenia, and has found it very instructive In examining over 500 persons, he found the index always above 67 *in persons with other* signs of constitutional asthenia, while it was always below this in the normal and the obese To get this index the distance between the notch of the sternum and the pubis is divided by the waist measure and multiplied by 100 This reveals the basis of constitutional asthenia, and discloses that this is the soil on which a number of apparently widely diverse morbid conditions develop, from characteristic, typical gastroptosis and enteroptosis to tuberculosis, hyperchlorhydria, hypersecretion and perverted or deficient thyroid functioning In England and Germany, where the average weight is higher, the index for constitutional asthenia averages higher than in Spain It gives a much better insight into the subject's endurance and resisting powers, and hence his aptitude for military service, than the ratio between the chest measure and the height, which is used in Spain to eliminate the unfit in passing on recruits, and Santa Maria urges that this constitutional asthenia index should be substituted for the latter This index is not modified by the height nor the state of nourishment He found it typical for constitutional asthenia in 60 per cent of all his tuberculous patients examined, and Leschke found an equally large percentage among the tuberculous soldiers last year

Hospitalstidende, Copenhagen

July 19, LIX, No 29, pp 697 724

78 *The Skin Tuberculin Test in Prognosis of Tuberculosis in Children Under Two (Om den prognostiske Betydning af positiv Pirquets Reaktion hos Børn fra *0 2 Aar*) G E Permin —p 697
79 *Case of Persisting Arrhythmia Without Valvular Defect or Subjective Symptoms (Udtalt Arterieflimren — Arythmia perpetua — uden Klappefeil og uden Spor af subjektive Symptomer i 15 dextra) C Gram —p 707

78 **The Skin Tuberculin Test as a Basis for Prognosis in Young Infants** —Permin remarks that the various statistics that have been published *on the subject of the skin tuberculin test applied to children less than 2 years old*, have been obtained in a hospital *or institutional* environment, with few exceptions This somewhat detracts from the reliability of the deductions as conditions in families differ from those in institutions He has been studying the skin tuberculin reaction in the young children in the families of persons who apply to the two antituberculosis dispensaries at Copenhagen It is the rule there to examine all the members of the families of applicants, and it has thus been possible to apply the Pirquet tuberculin test to infants under the age of 2 Forty-six gave a positive response and have all been followed to date over a number of months Some older member of the family had pronounced tuberculosis, with opportunity for infecting the children, in all but three cases This material is tabulated and analyzed, the conclusions being that only during the first year of life has the skin tuberculin reaction a particularly grave prognosis Of the fifteen infants less than a year old, six died, but only two of the thirty-one between 1 and 2 years old Many of the children who had been repeatedly and extensively exposed to infection seem to be thriving through quite a long period of observation His statistics show further that the antituberculosis dispensaries, by training the tuberculous in greater care to prevent infection of others, are doing a great work, the results of which are manifest in the clinical recovery of many children who otherwise would have succumbed to wholesale infection

79 **Persisting Arrhythmia Without Valvular Defect or Subjective Symptoms** —Gram's patient is a working man of 44, always robust, with two healthy children For fifteen years at least his pulse has been that of extreme and constant arrhythmia — arrhythmia perpetua — for which no explanation can be found There is no trace of a valvular or myocardium affection, the blood pressure is normal, hemoglobin 104, and there is nothing to suggest that digitalis might be needed During all this time he has been doing hard manual labor with much athletic work besides

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80 *Treatment of Eclampsia E Hauch —p 1151
81 Case of Optochin Amblyopia (Et Tilfælde af Optochin Amblyopia) V Scheel —p 1160
82 Tuberculous Pericarditis With Effusion Clinical Recovery Under Artificial Pneumopericardium T B Hansen —p 1166

80 **Eclampsia** —Hauch reports 109 cases of eclampsia from the obstetric department of the Copenhagen Rigshospital *Convulsions had occurred before delivery* in ninety-three but in sixteen had come on only after the child had been born The mortality was 10 per cent in the first of the above two groups, and 8 per cent for the total 109 cases He analyzes the cases to see if it could have been possible to determine which was going to have a more serious and which a lighter course, but could find nothing decisive Hence it is imperative to treat every case, even the *mildest, as if it* were going to be a grave one Only in this way can we ward off tragic surprises His experience with the *Stroganoff prophylactic* method of treatment was not very encouraging, and he queries whether it is wise to add two more to the *load of toxins* the woman is already carrying In any event, he thinks it is best to empty the uterus and thus get rid of *what in all probability* is the source of some of the toxins at least Some of the women were reexamined a year or more afterward and several were found to suffer from occasional dizziness, headache and disturbances in vision These later effects were encountered even in some of the supposedly lighter cases Of the sixty-eight children weighing over 2,000 gm, 10 per cent died, and 44 per cent of those weighing less than this, in addition to the five abortions and six stillborn children Only transient benefit was realized *from* venesection in the cases in which he applied it before delivery, but after delivery had been completed, venesection seemed to give permanent relief by getting rid of some of the toxins circulating in the system, after the source of the toxins had been expelled

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REMOVAL OF THE RIGHT COLON INDICATIONS AND TECHNIC*

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For many years the indications for the surgical treatment of megacolon, tumors, fistulas and some diseases of the colon have been definite The principles involved and the technic employed have been carefully considered along lines of theoretical, experimental and practical development The results of cure or relief within the natural limitations of the character and the extent of the diseases have been excellent Within a few years still greater progress has been made in our knowledge of diseases of the colon largely because of the endeavor to treat surgically not only stasis as an entity, but also various acute and chronic diseases, general and local, resulting from it, or, when other cause is not apparent, presumed to result from it Thus, in chronic changes in the circulation, such as endarteritis, in the nervous system, such as in epilepsy and neurasthenia, in muscle degeneration, rheumatoid arthritis, enteroptosis and various chronic so-called toxic diseases, surgical treatment by removal or short-circuiting the bowel was along lines already developed for the removal of tumors or the treatment of obstruction

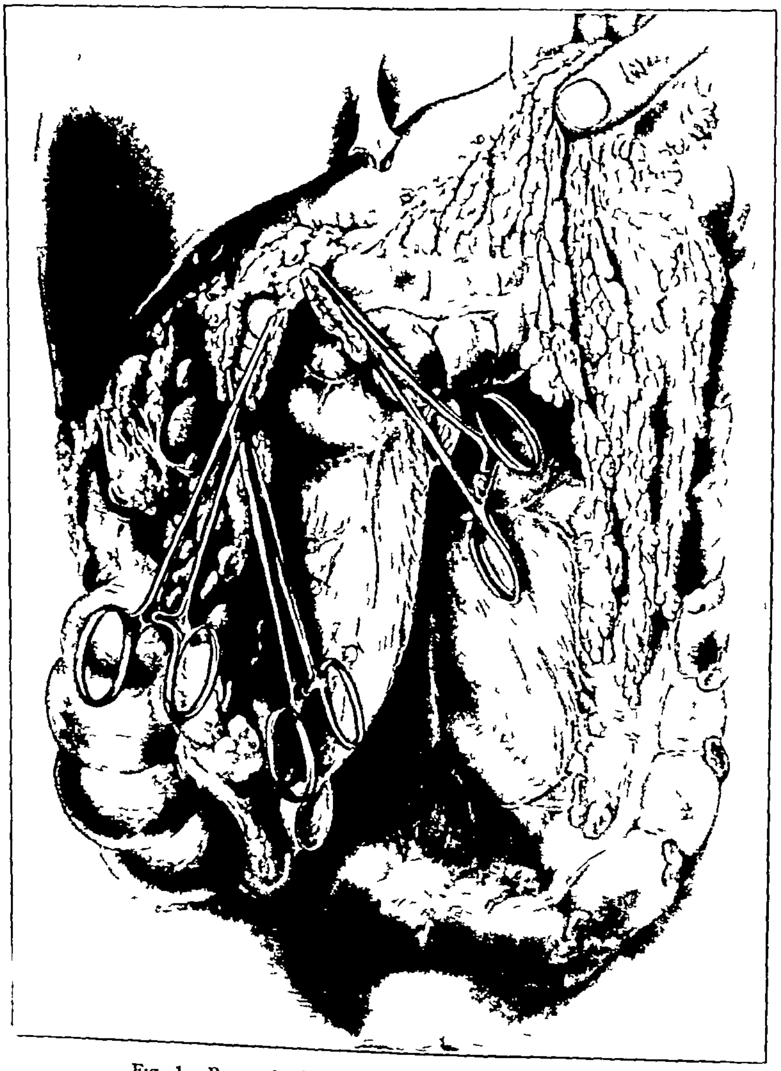

Fig 1 —Removal of right colon showing lines of section

These theories have been developed mainly by the work of Lane,[1] who in short-circuiting and removing the colon made practical application of the view of Metchnikoff namely, that the bacterial flora of the colon is responsible for many of the chronic ills of man, and that if it were possible to eliminate or shorten the colon, these ills would be decreased There is just enough truth in this theory and sufficient that is not true to require years to standardize the diseases and conditions between the border lines of medicine and surgery, in which the elimination of the colon will give sufficient improvement over the results of therapeusis to justify such surgical intervention This period will be reached only when the collective judgment of the profession can select the proper cases While Lane may be overenthusiastic in his claims, he deserves credit for much of the knowledge of the physiology and disease of the colon possessed by the medical profession today There is no controversy concerning operations for tumors and for obstructions

In properly selected cases of constipation, great benefit can often be obtained by the surgical elimination of the absorbing area of the colon It is certainly not advisable for simple constipation, but is advisable for some selected severe cases in which the patients are disabled by the condition in spite of prolonged and varied treatment At the present time the patients considered suitable subjects for this procedure are those who are toxic from the condition, the drugs or the absorption of unpassed intestinal contents after taking physic, and in whom the Roentgen ray shows a stasis of from three to four days' duration, which is often associated with complicating chronic infections

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* Read before the Section on Surgery General and Abdominal at the Sixty Seventh Annual Session of the American Medical Association, Detroit June 1916

[1] Lane W A Chronic Intestinal Stasis Brit. Med Jour, 1912 i 989 Surg Gynec. and Obst., 1910 xi 495 Lancet, London 1912 ii 1706

We have performed general colectomy in a few cases, and the right or partial colectomy in a larger number, and we believe that except in cases in which there are tumors and local disease, the latter operation is as good for the relief of symptoms as the general colectomy First, it removes the greatest absorbent surface in the colon, second, it is not so severe an operation, and third, it preserves the omentum, the loss of which is a serious consideration in itself, reducing protection, warmth, mobility, and the equalization of the abdominal circulation The general colectomy often apparently leads to matting adhesions of the anterior layers of the intestine In some cases, as reported by Clark,[2] these adhesions cause serious disability and in many cases require further operation and occasionally result in death

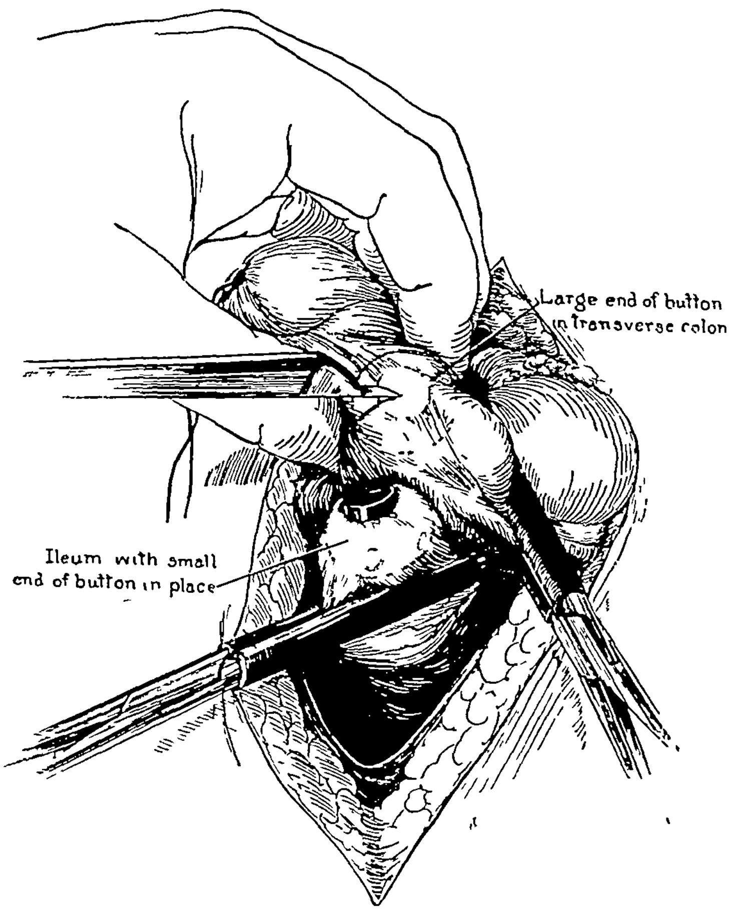
Large end of button in transverse colon
Ileum with small end of button in place

Fig 2 —End to side union by Murphy button

It is true that much of the present-day surgery has been taken from fields formerly classified from the therapeutic standpoint as medical, and in the slow process of change the surgeon has been held in check by a constant dispute of the ground Specialists have been developed to treat the stomach, the first portion of the intestine and the upper abdomen, and others who devote their attention to the lower end of the colon and pelvis Thus it is that several yards of bowel have been left as an unclaimed field—not only unclaimed, but not wanted—and this has been forced on the surgeon for the relief of numerous chronic ailments, many of which are incurable

In judging the probable or possible benefits of the surgery of necessity or expediency, the development and function of the large bowel should be taken into consideration

Like the stomach and urinary bladder, the colon has a shorter heredity than the small intestine Originally it was equipped on its right side with absorbing villi like those of the small intestine, which disappeared early The first portion of the colon is an absorber of fluids which are taken through the portal circulation, while the left half of the colon, especially its lower portion, has become, through convenience, an organ for the storage of the drier fecal matter It is the natural habitat of several microbes, the activities of which produce a considerable part of its fecal contents Such bacteria are harbored throughout life, consequently, a considerable degree of immunity to them is natural to the individual even when they become misplaced Several diseases chronic in character, local and general, are caused by varieties of intestinal bacteria and protozoa which are not sufficiently common for the development of immunity

The lymphatics of the colon are limited in comparison with those of the small intestine, which are very numerous Reasoning from the nature of the contents of the colon, the converse would appear to be true, but as I have pointed out,[3] it is probable that the lymphatic supply was limited so that the septic colonic contents might be passed through the liver This provision of nature explains why malignant diseases of the colon remain localized for such long periods as compared with malignant diseases of the small intestine Butlin[4] shows that in about 50 per cent of patients with malignancy of the colon, the disease at death is still local In young persons, however, the lymphatics are more active, and earlier distribution of the disease is evident This is true also of cancers located in the transverse colon with its associated omental glands

The entrance of the small bowel into the colon is closed by the ileocecal valve, which is rather badly constructed mechanically and often ineffective By one series of observers, it is looked on as acting to delay the passage of the contents of the ileum until further time is given for absorption of nutriment Simple constipation has been relieved by enlarging the ileocecal valve (W J Mayo)[5] Others believe the valve acts to prevent the entrance of gas and bacterial products from the colon to the ileum, whose absorbing villi do not have the liver for a purifying agent, and some surgeons operate to reconstruct the valve (Kellogg)[6] Symington's[7] description of the valve shows that its inefficiency is due largely to the obliquity of its entrance into the cecum, also to its lower attachment to the inner cecal wall and partial invagination into the cavity of the large bowel In this respect it forms a mechanical barrier against back-flow such as is formed by the mechanism of the common-duct entrance into the duodenum and the entrance of the ureter into the bladder The viscus under tension compresses the duct entrance and requires at all times some muscular effort at delivery of its contents Peristalsis of the intestine is stimulated by the intestinal content and varies with its variety or irritating qualities In the small intestine it is fairly regular and constant until the bowel is emptied This propelling effort is accomplished by the action of the circular and longitudinal intestinal muscles The peristalsis of the colon differs from the peristalsis of the small intestine in that it is not constant, the fluid contents of the ileum passing into the cecum remain at rest for a considerable period of time until consistency is increased by the absorption of fluid Metchnikoff is undoubtedly right in his claim that in health a great portion of the body fluids are absorbed from the large bowel The cecum normally empties but a few times in twenty-four hours In the large bowel these movements are usually accompanied by an audible gurgling In the right colon a slight reverse peristalsis has been demonstrated which favors delay Delay in the right colon is due to the attachment at the splenic flexure which forms a simple kink-valve or bend in the tube This must be of importance as it is the most constant attachment of the colon Rising nearly as high as the entrance to the stomach, it prevents siphonage The fact that the intestine is a muscular tube within a muscle-walled cavity makes all operations which depend for drainage on gravity ineffectual in the majority of instances Peristalsis of the colon is also stimulated by the intestinal contents, the movement of which is caused by contraction of the circular fibers for steadying and pushing and aided by the sacculations The latter are formed by the three muscular ribbons, which are one-sixth shorter than the total length of the large bowel In the forward movement of the thicker intestinal contents, the muscular ribbons serve as tractors Space is made for the advance by the distention of the intestinal walls by the gas normally present Thus a cecal sigmoidostomy will drain if the obstruction is above the cecum Without obstruction it may make a vicious circle For various reasons the operation has been unpopular A few patients, however, have been reported as benefited by it

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[2] Clark, J G The Removal of the Colon for Obstructive Fecal Stasis, with a Report of Eight Cases, Tr South Surg and Gynec Assn, 1913, xxvi

[3] Mayo, C H Surgical Physiology of the Lymphatic System Tr South Surg and Gynec Assn, 1903, xvi, 442

[4] Butlin, H T On the Operative Surgery of Malignant Disease, Philadelphia, P Blakiston's Son & Co, 1900, p 260

[5] Mayo, W J Ileocecal Orifice and Its Bearing on Chronic Constipation, Ann Surg, 1900, xxxii, 364

[6] Kellogg J H Incompetency of the Ileocecal Valve the Most Common Cause of Ileal Stasis, Lancet Clinic 1915, cxiii 602

[7] Symington cited in Cunningham, D J Text Book of Anatomy, New York, William Wood & Co, 1907, p 1078

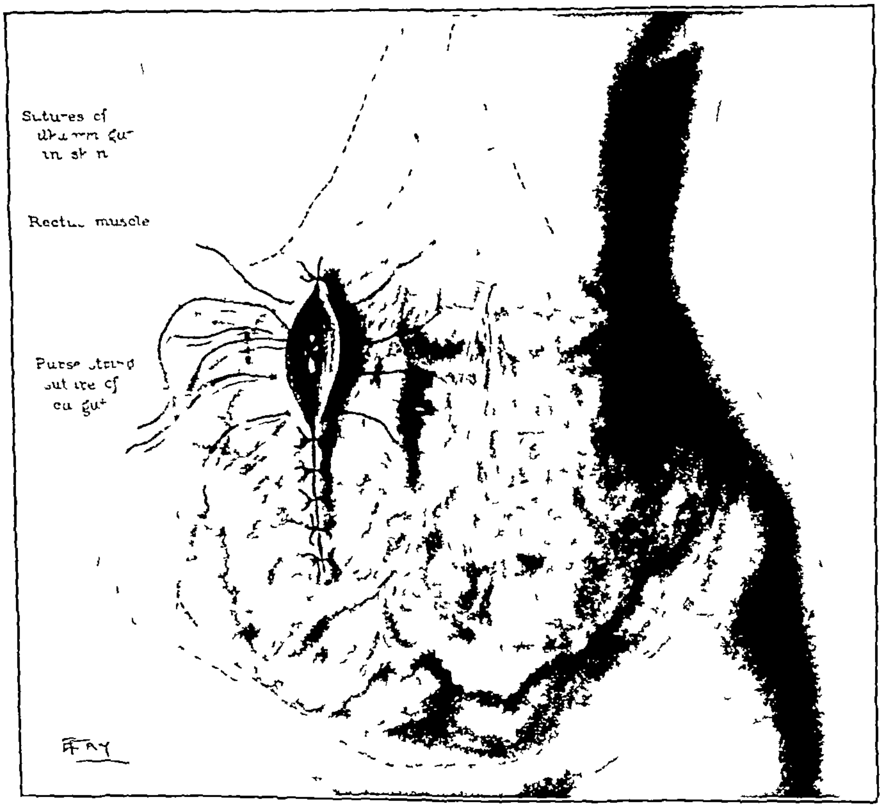
Sutures of silkworm gut in skin
Rectus muscle
Purse string suture of cat gut

Fig 3 —Incision showing method of closure and end of bowel in depth of wound

It has been shown that there is a wide variation in the length and size of the intestine in different persons, the shortest intestine on record was 8 feet long, and the longest, 33 feet (Lynch and Draper[8]) We thus have the extreme carnivorous type and the herbivorous type While all of the colon can be sacrificed with the maintenance of approximate good health, the loss of more than one half of the small intestine is most serious

The large bowel originates on the left side of the abdomen, the cecum rotating around the abdomen from left to right At about the third month it is beneath the stomach and later rests beneath the liver and over the right kidney, until shortly before birth, when it descends to its final position in the right iliac fossa Occasionally, according to Treves,[9] this descent may be delayed up to two years after birth, and rarely the rotation may not occur or the cecum may be permanently fixed over the right kidney According to the period of descent it may ride over the top of the parietal peritoneum, developing a long mesentery, the "cecum mobile" of Wilms, or it may burrow through it, covering itself with an extra layer of peritoneum Between these two extremes and the normal are the various forms of veils, adhesions and fixations as supporting ligaments described by Long,[10] Jackson,[11] Pilcher,[12] Gerster,[13] Gray,[14] Pringle,[15] Binnie,[16] Eastman,[17] Flint,[18] and Lane It is at once evident that, because of the rotation, all vessels and nerves of any importance are to be found on the inner leaf of the mesentery, the outer fold being principally fixative Division of the latter adds greatly to the mobility of the bowel without impairing its vitality and simplifies some operations on it

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[8] Lynch J M and Draper J W Anastalsis and the Surgical Therapy of the Colon Am Jour Med Sc 1914 cxlviii 828

[9] Treves F The Anatomy of the Intestinal Canal and Peritoneum Hunterian Lectures Brit Med Jour 1885 i 415 470 527 580

[10] Long J W Pseudoperitoneal Cauls of the Colon South Surg and Gynec Assn 1912 xxv 446

[11] Jackson J N Membranous Pericolitis Tr West Surg and Gynec Assn 1908 xviii 269

[12] Pilcher L S Surgical Aspects of Membranous Pericolitis Ann Surg 1912 lv 1

[13] Gerster A G On Chronic Colitis and Pericolitis Ann Surg 1911 liv 325

[14] Gray H M W Chronic Intestinal Stasis Brit Med Jour 1914 i 188

[15] Pringle, S S Chronic Intestinal Stasis Brit Med Jour 1914 i 183

[16] Binnie J F Pericolitis Dextra Month Cycl Prac Med 1905 xviii 341

[17] Eastman J R The Foetal Peritoneal Folds of Jonnesco Treves and Reid and Their Probable Relationship to Jackson s Membrane and Lane s Kink Surg Gynec and Obst 1913 xvi 341 A Further Study of Pericolonic Membranes ibid 1914 xviii 228

[18] Flint J M Embryonic Bands and Membranes About the Caecum Johns Hopkins Hosp Bull 1912 xxiii 302

In the development of the intestine the vitelline duct (or should a remnant be left, a Meckel diverticulum) is attached to the ileum about 2¾ feet from the ileocecal valve (Cunningham) Embryologically, then, the lower ileum is developed with the colon

It is to be noted that in those operations in which the colon is removed—for example, Lane's operation—or in which in certain diseases it is rendered completely functionless for considerable periods by means of a low ileostomy as advocated by Brown,[19] the lower ileum becomes dilated and takes the place of the colon Clark shows the dilatation of the ileum to be regular following colectomy In low ileostomy the fluid contents of the ileum soon thicken, and emptying occurs at intervals with less gas and little odor

TECHNIC

In operating on the right colon an incision is made in line with and through the right rectus It should be ample in length to give free working space Following a cursory examination of the right colon, a general exploration of the entire abdomen should be made to search for metastases in malignancy and also to avoid overlooking associated disease, thus preventing useless or unnecessarily extensive operations in malignancy or failing to make them sufficiently extensive

If extirpation is decided on, extensive protective gauze packing is adjusted to the inner side of the colon An incision is made along the white fold of parietal peritoneum where it joins the peritoneal covering of the outer side of the colon This permits of extreme mobility and allows the bowel to be elevated outside of the abdominal incision The space to the outer side is filled with a protective gauze pack The ileac mesentery is perforated, and the ileum is divided between double clamps 3 inches from the ileocecal valve, the cut ends projecting from the forceps being sterilized with the actual cautery From below up, the mesentery of the cecum and ascending colon is divided between forceps up to the transverse colon, and the omentum is ligated and separated from the right one third of the transverse colon (Fig 1) At this point the colon is divided between clamps, the loose bowel removed, the projecting stump from the distal clamp also being treated by cautery The vessels supplying this region, few in number and readily seen, are ligated with catgut In nonmalignant cases the division of the mesentery is made closer to the bowel, while in malignancy more of the mesentery is taken, including the lymph glands which drain the area Care should be taken in the separation of the colon to avoid injury to the duodenum While the ureter should be observed on the right side, it does not come into the operative field except in extensive malignancy when ligation of the ureter or removal of the kidney may be necessary We have been able to remove such advanced tumor growths in numerous instances, including several in which the patients had been explored and declared inoperable from one to several months previously In the latter type of cases the tumors are usually adherent to the incision in the abdominal wall and require a block removal of the entire area over the growth In such cases there is greater danger of recurrence in the abdominal muscles than of recurrence within the abdomen

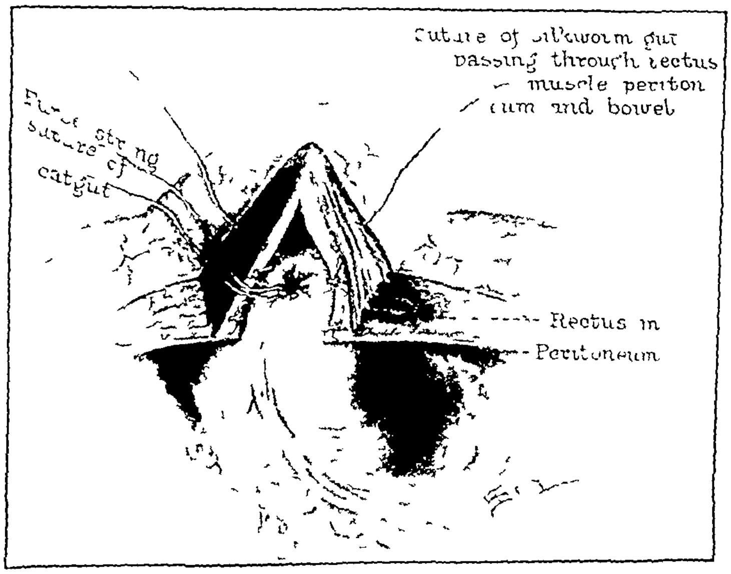
Suture of silkworm gut passing through rectus muscle peritoneum and bowel
Purse string suture of catgut
Rectus m
Peritoneum

Fig 4—End of colon brought up to peritoneum and sutured

Using chromic catgut as a suture, the end of the colon is prepared for closing by inserting the needle and catching into the bowel first on one side and then the other over the forceps, including the peritoneum and muscle, the loops crossing the forceps being left loose Any contents of the bowel are now forced onward and a rubber-covered clamp applied for control about 4 inches from the end The forceps closing the end of the bowel are now removed, the end opened and the female or spring side of a proper-size Murphy button pushed through the loose sutures into the opening and left loose within the colon (Fig 2) The two ends of the thread being drawn taut, immediately invert the mucous end of the colon and approximate the peritoneal surfaces A second row of sutures is applied to make the closure more perfect, the ends of the suture being left long (Ligation of bowel end and purse-string invagination is equally good) The button within the bowel is manipulated so that its tube is pressed against one of the muscular bands, about 2½ inches from the end of the bowel The bowel is incised on the tube of the button, so that it can be pushed through the wall of the intestine, no suture being used This is held until the other half of the button is adjusted into the end of the ileum by suture The two halves are then pushed together, making an end-to-side union If deemed necessary, a few interrupted sutures of fine catgut or silk may be used over the button, to adjust adjacent epiploic tags or omentum for protection and support at the point of union The anastomosis can be made by suture, but the Murphy button is safer, quickly adjusted and ideal for the purpose Some prefer side-to-side union in spite of the tendency to dilation of the blind ends The triangular opening in the mesentery beneath the union is now closed by catgut suture A few sutures are inserted to adjust the parietal peritoneum over the exposed cellular tissue from which the colon was separated (Fig 3) The wound is now closed, the end of the colon being drawn into the peritoneal opening as closure is made The colon is brought into the muscle but not through it, the muscles being sutured above and below this point, the long suture from the end of the bowel hangs out of the incision A strip of gauze is inserted to the end of the bowel to keep the muscles apart The procedure is employed as a safety valve to relieve gas should stasis with great distention occur between the fourth and sixth days Peritonitis causes most of the deaths by necrosis of the union from distention In a series of twenty cases we have had no deaths from the use of the Murphy button and the safety-valve method By drawing on the projecting suture and using small pointed forceps along the taut thread, the bowel is readily opened and gases permitted to escape If not required by the sixth day, the suture is cut, the gauze removed and the opening allowed to close If the suture is not needed, the healing is not prolonged if needed, closure is usually effected within a short time (Fig 4) This safety valve is of great benefit in about 15 per cent of the cases Should the peritoneal cavity be contaminated, drainage is secured by stab incision with drain in the loin

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[19] Brown, J Y The Value of Complete Physiological Rest of the Large Bowel in the Treatment of Certain Ulcerative and Obstructive Lesions of this Organ, with Description of Operative Technique and Report of Cases, Tr South Surg and Gynec Soc 1912, xxv 440

The method of operation described is safe and remarkably effective for tumors, granulomas and fistulas In cases of toxemia the general condition is improved, and in 80 per cent the constipation is improved The general improvement made in the latter cases is somewhat less marked than in operations of necessity for tumor and obstruction (Fig 5) In operating on the left colon for obstructive conditions by the Mikulicz-Bruns method or by resection, appendicostomy is of great value

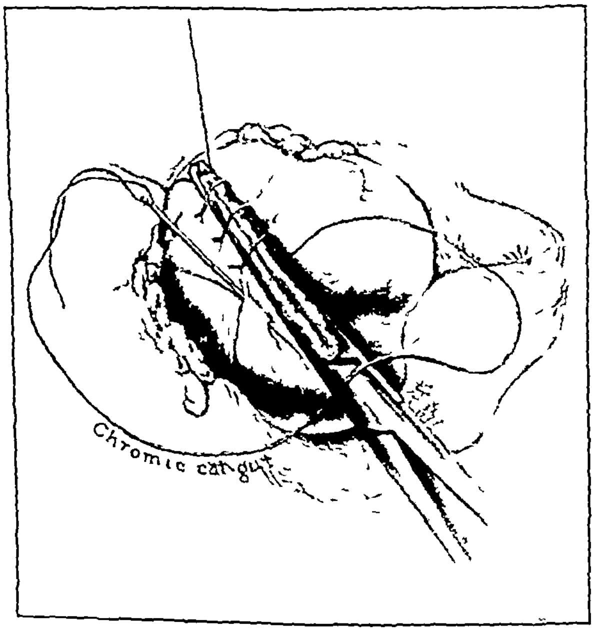

Fig 5—Aseptic method of inverting mucous membrane by a running suture

Not including the rectum, there were 262 resections of the large intestine for malignancy Of the patients who recovered and who were operated on more than five years ago, 54 per cent are alive Of those operated on more than three years ago, 67 5 per cent are alive

From January, 1898, to Dec 31, 1915, the right half of the colon was resected for tumors, disease and stasis in 235 cases, with an operative mortality of 12 5 per cent In our early work the operability was lower, the mortality lower and the permanency of cure higher This led to an increase in the operability of these otherwise hopeless cases, with the result that there was an increase in the mortality and a decrease in the permanency of cure, but considered from the standpoint of the total number of cases seen, a great increase in the number cured The present operability is 62 per cent Unless the operability percentage is given, statistics in regard to the results of operations for malignancy are misleading

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Moderation in Eating—For the sake of health medicines are taken by weight and measure, so ought food to be, or by some similar rule—Skelton

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THE VALUE OF ILEOSIGMOIDOSTOMY AND SIMILAR PROCEDURES

IN THE TREATMENT OF CHRONIC MULTIPLE ARTHRITIS *

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Whether or not its truth is admitted, the originality of Lane's idea and the brilliancy with which he translated the thought into action must be admired Chronic infectious arthritis had long been a troublesome thorn in the side of the profession, in an occasional case there was spontaneous recovery or amelioration of symptoms following this or that mode of treatment, but it was generally recognized as a fact that in the average case of chronic infectious arthritis medical science offered little hope of cure The many theories as to the etiology of the disease and the numerous methods advocated for treating it bore strong witness to our lack of definite knowledge as to its real cause, and despite treatment, the sufferers usually continued to suffer and, through alternating periods of relative quiet and of acute torture, passed slowly on into years of utter helplessness What wonder, then, that the attractive theory of intestinal stasis with its resulting sequelae of microbic invasion, toxemia and joint infection and its possible relief by a relatively safe and simple surgical operation should draw wide notice and that both surgeon and patient should hasten to test in the fire of experience the practical worth of the novel thought! For it is only through actual experience on human beings that the degree of worth in such an idea can be truly estimated, since under no other circumstances can the real conditions of the disease be reproduced It is only because of this fact and because the present number of reported observations is relatively small that Dr MacAusland and I presume to present to this section the result of our work in such a limited number of cases Our paper makes no pretense of being anything but a record of the effect, immediate and remote, of ileosigmoidostomy, etc, in cases of chronic, multiple nontuberculous arthritis

Other series have been published, the most significant, perhaps, being one by Fagge and Hughes[1] and another more recently by Rea Smith[2] in a paper presented before this section last year

The first-mentioned authors draw their material from the records (from 1909 to August, 1914) of Sir

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* Read before the Section on Surgery General and Abdominal at the Sixty Seventh Annual Session of the American Medical Association, Detroit June 1916

[1] Fagge and Hughes Brit Jour Surg, 1914 1915, ii 657

[2] Smith Rea Ileocolostomy and Colectomy for Arthritis Deformans The Journal A M A Aug 28 1915 p 771

Arbuthnot Lane and give the results obtained through the performance of colectomy (four cases) and ileosigmoidostomy (three cases) in persons with multiple, nontuberculous arthritis The immediate results were good in all instances, the pain and the joint stiffness were less, and the patients all felt more comfortable The late results were in the main fairly satisfactory Two cases could not be traced, in one, in which a colectomy was performed, the patient died of pulmonary embolism on the thirteenth day, of the other four, two may be classed as recoveries (one and one-uarter and two and one-half years after operation) o all intents and purposes, one as continuing to improve at the end of three months and the fourth as unchanged, two and one-half years after operation

Of course, recovery, when spoken of here in connection with joints, is not to be understood in the sense that bony ankylosis and gross deformities disappeared It means that such initial conditions as swelling, effusion, tenderness, etc, and their immediate sequelae were remedied

I have been unable to find a detailed account of Smith's cases, but his results are remarkably good He reports the outcome of his experience with fourteen patients In two instances he did a primary colectomy, and this procedure was followed by a marked benefit to both patients In twelve of the cases, ileosigmoidostomy alone was done as a primary measure One of the patients died on the fifth day in uremic convulsions, a death which may not be laid at the door of surgery, as Smith notes, five were very greatly improved, three to the stage of resuming their usual work, in the remaining six patients, while temporary improvement followed the operation, it was not permanent and they soon relapsed into their former conditions, four of the six underwent a second operation, colectomy, with great and seemingly permanent benefit to three of them How long after operation the report was made, I do not know Thus, ten of the fourteen patients on whom Smith operated were either cured or put in such condition that they could get about without assistance, a truly remarkable showing

Our series consists of ten cases, in eight, ileosigmoidostomy was done In all these the ileum was cut across about an inch and a half above the ileocecal valve, and the end of the distal portion was inverted and closed, in four instances, the end of the proximal portion was also closed and a lateral anastomosis with the lower sigmoid carried out, in the other four, the open end of the proximal arm was implanted into the side of the sigmoid In one of the remaining cases cecosigmoidostomy was done, in the other, a hemicolectomy, the proximal end of the ileum being implanted into the side of the distal portion of the transverse colon There was no mortality In one case, the only one in which a cure really followed, a technical defect gave rise to a fecal leakage which was successfully repaired at a second operation

The immediate effect of operation in these cases is always a beneficial one, remarkably so in some instances This fact has been noted by others In one case of Lane's series, the day following operation saw a striking change in the patient's condition, there was an increase of 25 degrees in the extension of the knee-joints and, for the first time in six months, the patient could hold a pen in her right hand and could write her name While I have observed no such wonderful alteration as this in the joint conditions, it cannot be denied that in many ways the patients receive marked and speedy relief from the operation The cold, moist hands and feet become warm and dry, the tender, painful joints feel easy and comfortable, the clammy sweats cease, and the patient experiences and admits a general betterment In other words, the purely toxemic symptoms are relieved and the relief comes quickly, in from forty-eight to seventy-two hours, as a rule Later, in favorably influenced cases, there follow subsidence of the swellings about the joints, especially the small ones, an increase in the degree of joint motion and a change for the better in the regularity and character of the bowel movements Even in cases that later relapse, the amelioration may continue for some time, weeks, months or even a year (as happened in one case of our series) and thus give promise of permanency Usually, however, in our experience the gain has been general rather than local, temporary rather than permanent The general bodily health improves and continues to be better permanently, while the joint conditions, though they may be relieved for a longer or shorter time, usually relapse ultimately into their former or even a worse state

In our series of ten cases we can boast of but one cure After ten years of more or less constant trouble with hands, hips, knees, ankles and feet, a young man willingly submitted to ileosigmoidostomy, and now, almost three years after operation, remains entirely well I wish I knew exactly why A second patient, ten months after a hemicolectomy, reports herself as continuously improving both in her general and in her arthritic condition She is one of the two patients who complain of postoperative diarrhea, she has six or seven bowel movements daily, in the other patient, diarrhea is only occasional A third patient gained much for a year and then fell back into her former wretched state To the other seven, operation gave no relief as far as their joints were concerned, but it improved their general health, four state that their joint condition is worse These reports indicate the condition of our patients from one and one-half to three years after operation

In these three series, then, we have to do with thirty-one cases of multiple infectious arthritis Two of the patients could not be traced, and hence the late result in these cases is not known Of the twenty-nine others, twelve were cured or greatly benefited, five by colectomy (primary or secondary) and seven by simple ileosigmoidostomy Considerable improvement followed colectomy in three cases, and ileosigmoidostomy in one Colectomy left the condition unchanged in one case, and ileosigmoidostomy in six, four of these patients later submitted to secondary colectomy with permanent (as far as we may judge) relief to three of them Four patients were worse after ileosigmoidostomy than before it One death (pulmonary embolus) followed colectomy, and one (uremia), ileosigmoidostomy

In estimating the value of any mode of surgical treatment, proper regard must be had for both the mortality and the morbidity that is connected with its accomplishment Sir Arbuthnot Lane[3] believes that the immediate risk of ileocolostomy is greater than that of colectomy, and that the convalescence after the latter is far less bothersome This statement may represent the truth in Lane's clinic, but I am sure it would not hold true for the average surgical clinic in this country for Lane has brought his own technic to a very high level in the performance of colectomy, and has had wider experience with that operation than any of us will probably ever have It seems certain, however, that the mortality from neither procedure is prohibitive The death from uremia in one of Smith's patients was not unexpected, the surgeon had recognized the condition before operating, and the patient had full appreciation of the chances and was willing to take the risk, the fault, if fault there was, is neither surgery's nor the surgeon's The patient to whom pulmonary embolism brought death ran the same risk as the healthiest of us would have to take, if he submitted to a laparotomy for any cause whatever If we may draw conclusions, then, from a study of so limited a number of cases, it is a safe assumption that the mortality rate need not cause undue apprehension Nor can any increase in morbidity be said to follow these procedures In only two cases did diarrhea result, and diarrhea is the only postoperative sequela we encountered in one it was almost negligible being only an occasional event, while, in the other, it was troublesome In the balance against this must be weighed the fact that amelioration in general health was attained in all the patients, that a better working condition of the bowels was secured and maintained, and that even those whose joint conditions grew worse were suffering from the effects of the uninfluenced disease and not of the operative procedure

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[3] Lane, Sir Arbuthnot Brit Jour Surg, 1914 1915, ii 599

SUMMARY OF RESULTS IN THIRTY-ONE OPERATIVE CASES

Results	Colectomy	Ileosigmoidostomy	Total
Cured or greatly improved	5 (2 primary 3 secondary)	7	12
Considerably improved	3	1	4
Worse		4	4
No change	1	6 4 other cases (a total of 10) were not influenced by ileosigmoidostomy and had a subsequent colectomy	7
Death	1 (pulmonary embolus)	1 (uremia)	2
No report	2		2
Total	12	19	31

When and on what grounds, then, shall abdominal section be urged in these cases? Of course, the earlier the patients reach the surgeon the better is the chance of cure When advanced destructive joint changes have taken place, no treatment can bring about complete relief It is unfortunate but true that many sufferers from chronic arthritis pay little attention to the often slight primary signs of the disease, the discomfort and the stiffness frequently confined for a time to the finger joints, the wrist, etc It is only when the trouble has spread to other and larger joints that the patient takes alarm and seeks a physician, who himself often fails to appreciate the possibility that some focus of infection, more or less obscure, may be the active cause of the trouble and by his hit-or-miss method of treatment postpones still further the introduction of at least intelligent attempts at relief It should be emphasized that, just as soon as there arises even a suspicion that the process may have an infectious cause, painstaking search should be made for that cause The mouth, gums, teeth, tonsils, throat, nose and accessory cavities should be carefully investigated Roentgenograms of the skull, with special reference to diseased sinuses and to the possibility of slumbering, unsuspected infections about the dental roots, should be made Urethral vaginal and uterine discharges should be stained and examined microscopically The urine should be carefully searched for evidence of renal infection Hugh Young warns us, too, that the seminal vesicles may harbor the guilty organism When all other possible sources of infection have been excluded, either through demonstration of their absence or through their elimination by suitable treatment, then attention should be turned to the intestinal tract and to the possibility of intestinal stasis, the frequent predisposing cause, if current opinion is correct, of the formation and absorption of intestinal toxins and perhaps even of microbic invasion of the blood current Smith believes that the intestine may be the real primary source of many of the foci of infection which themselves are now regarded as truly primary The cure of some cases of general infection without recourse to treatment directed to the intestinal tract is not confirmatory of the universal truth of this opinion

The discussion of just what intestinal stasis is, of its cause and of just how much dependable knowledge of either or both may be obtained from the average roentgenographic examination is most interesting It must be admitted that there is lack of agreement on many phases of this topic Mr Arthur Keith[4] of London, for instance, studied roentgenograms by Jordan of many cases of intestinal stasis (a term, by the way, which he considered "somewhat elastic"), and never succeeded in finding one which gave him satisfactory evidence of pressure or traction of a peritoneal band on the intestinal tract His anatomic investigations on colons removed by Lane simply strengthened him in this opinion In fact, he believes that neither position of the intestine nor peritoneal bands play an important role in the causation of chronic intestinal stasis, which, in his mind, is always secondary to a disorder of the neuromuscular mechanism of the bowel All this is quite contrary to the impression that may be taken from the writings of other men Again, Rinkenberger[5] of Los Angeles, working in Lane's clinic in 1911, demonstrated in healthy young men roentgenograms absolutely identical with those which Lane was showing as indicating intestinal stasis My own experience with roentgenologists in this field has led me not to accept their interpretations as absolutely definitive With our patients, the assumption of the presence of intestinal stasis and the consequent recommendation of operation has been reached more through a process of exclusion than through a certain demonstration of the stasis by roentgenograms A careful search was always made for sources of infection other than intestinal These being absent or eliminated, the presence of intestinal stasis and toxemia was assumed The roentgenologic examination was regarded simply as or as not corroborative It may be said in passing that in all our cases the roentgenologist reported "ileac stasis" In none of the cases, however, was an evident anatomic cause for the stasis demonstrated at operation

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[4] Keith Arthur Brit Jour Surg 1914 1915 ii 576
[5] Rinkenberger F W Abstr THE JOURNAL A M A Aug 28 1915 p 770

I must admit that my mind is not entirely clear either as to why operation benefits some cases and does not influence others, or as to just what it is that operation does in some cases and fails to do in others, with or without relief to the patient The doing away with the so-called ileal stasis by drainage of the terminal ileum is not the curative, or, perhaps, I should say not the only curative, factor in a successful operation, for, in the sole case in which we can honestly claim a real cure, a roentgenogram taken a month ago (three years after the operation) shows a markedly dilated ileum and all roentgenographic signs of ileac stasis, twenty-four hours after the injection of the bismuth meal (4 ounces of bismuth in a pint of buttermilk) Yet the man's general health and joint conditions are entirely normal It may be that Smith's idea is the correct one and that the factor essential for success is either removal of the colon or, if the colon is left in place, absence of any obstruction in the colon between the cecum and the point of anastomosis, in other words, if the colon is sidetracked, the segment thus excluded must be freely open, entirely unimpeded and fully capable of emptying itself Supportive of the correctness of this idea is the fact that in seventy-two hours the colon in our cured patient was practically entirely free of all the bismuth introduced through a bismuth enema Only a very small remnant remained in the ascending colon, and for some reason that small remnant was still there thirty days after the giving of the enema

With relatively so little clinical material on which I may base a judgment, I do not feel justified in drawing conclusions of a definite character as to the general efficacy of either colectomy or ileosigmoidostomy in these cases My present feeling in the matter may be set forth about as follows

1 In many instances heretofore we have been dealing with long-continued, advanced cases in which neither operative nor any other method of treatment may be justly expected to be of much avail, hence, cases in which the probability of an intestinal source for the infection can be established should have an early operation

2 Before advising abdominal operation in any case, all foci of infection other than intestinal should be sought for and, if present, should be eliminated

3 Every patient to whom operation is proposed should have set before him clearly the pros and cons of operation, its possibilities and its uncertainties, for, while I am sure that operation has some influence on all cases, since, in our experience, it has never failed to help the purely toxic symptoms, yet its answer to our chief demand, the relief of the joint conditions, is disappointing in its uncertainty and frequently in the results obtained

4 Even though I believe that a somewhat greater degree of danger is attached to the performance of colectomy, yet I should at present advise it rather than a simple short-circuiting operation, because of Smith's excellent results with the former as a primary measure, and still more because of his successful use of it as a secondary procedure in cases uninfluenced by a previous ileosigmoidostomy

5 In no case, whether or not operation is considered, should such general measures as outdoor life, proper diet, exposure to sunlight, etc, be neglected

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS MAYO AND BOTTOMLEY

Dr Rea E Smith, Los Angeles The two postoperative complications which arise most frequently to spoil the success of a Lane operation are (1) backing up of fecal matter into the cecum and (2) unusual postoperative adhesions The most frequent cause of failure in Lane's work is the unusual development of postoperative adhesions The symptoms usually become manifest about the end of the first year after operation At that time the patients may have a relapse and, as a result of the narrowing of intestines by the contraction of adhesions they may have more stasis than they had before the original operation These adhesions are due to infection at the time of operation The Lane procedure is open to a technical criticism Lane sutures through and through the infected colon wall—the infected silk soils his gloves as well as the abdominal packs which it touches—thus rendering the whole field unsterile The same infected hand then goes into the pelvis and lifts up the small intestines so that the split in the mesentery can be stitched The adhesions we find on secondary operation after Lane's short circuiting operation are in patches, widely disseminated patches of local peritonitis due to infection at the time of the original operation Recognizing this fact it is possible to do a short circuiting safely The operation should be changed so that the colon is opened last and the field treated as infected from that time In the Mayo right-sided colectomy the abdomen is not invaded after the colon is opened The Murphy button is used and there is much less likelihood of infection and therefore of failure due to adhesions I reported fourteen operative cases of arthritis last year I am not as enthusiastic now as I was at that time Twelve patients are living, three of the twelve are perfectly well at twenty-eight, twenty-six and eighteen months following operation The patient, whom I showed here last year as a cure at the end of fourteen months, had to be reoperated on two months later for acute obstruction in the ileum due to postoperative adhesions Because her obstruction was high she did not have a return of her joint symptoms, and she has had no return since Her abdomen was full of adhesions from patches of local peritonitis following the Lane short circuit operation Of the remaining nine cases in the series, two show no change, the other seven are all better than they were a year ago, but they have not gone on making the rapid spectacular recovery that the other three have made None of them would go back to their former condition, because of the improved general condition and freedom from pain

Dr W R MacAusland, Boston My experience with this procedure is based on a series of ten patients in whom the routine methods of treatment had failed, that is, no source for the infection could be found in teeth, tonsils, sinuses, kidneys, etc, and furthermore their intestinal symptoms were not relieved by the ordinary medicinal means I cannot but feel strongly that the source of many arthritic conditions is to be found in the intestinal tract and the large majority of chronic arthritis cases have been unrelieved by the ordinary methods because this has been overlooked In spite of the removal of tonsils and drainage of foci at the roots of teeth, most of these joint conditions are slowly progressive There are all stages from the initial infection to the stage showing much destruction of cartilage with great disability and obviously in order to effect any substantial relief treatment must be inaugurated early in the course of the disease, before severe joint changes have occurred When making a comparison of results by various methods we must make allowance for the joint changes which have taken place in each case It may be well to call attention to the fact that the so-called "toxic arthritis" is coming more and more to be considered in this class "Toxic" as a term must be restricted to such changes as are found without the presence of organisms, and in which it is reasonable to suppose no organisms are present Those arthritic conditions resulting from chemical changes from disturbed metabolic conditions are also strictly omitted from consideration in this discussion It is well known, however, that chemical, toxic and bacteriologic changes frequently give approximately the same findings, that is, one may have a destructive process accompanied by some form of exudate from any of these causes It is well to consider all cases of polyarthritis progressive in nature, with all signs of an active process in and about the joint, as being actually infected with organisms metastatic from some focus known or unknown The ten cases operated all presented intestinal symptoms and chronic constipation It was observed frequently that slight exacerbations in the disease were due to an acute intestinal upset, accompanied by temporary diarrhea The ordinary signs of intestinal stasis were present in all Following the failure of ordinary methods and after demonstrating an actual ileostasis as being present, these ten patients were referred to Dr Bottomley for a surgical correction of their intestinal condition

Dr. Jerome Morley Lynch, New York With reference to the so-called ileocecal valve It seems to me that this segment of the intestinal tract being in the limelight it is about time that we come to some conclusion as to whether it is a muscle or a valve If a muscle, then no operation can possibly be of any benefit. If a valve, then operation, if one follows Nature, will probably prove useful It seems remarkable to me that the wonderful paper of Elliot has been overlooked for seven or eight years, because it must be at least that time since the paper first appeared in which he made a number of very exhaustive and accurate experiments with regard to the value of this segment of the gut. I think he has shown conclusively that this is not a valve but a muscle We have been able to show on humans that by the injection of ten minims of epinephrin you can shut a so-called leaking valve as tight as a drum Thus some patients were examined after barium enema and the insufficiency was promptly corrected for several hours by epinephrin The connection between the internal secretions and the mechanism of this muscle is very important What the relationship is we do not know as yet. Draper and I consider it probable that the Bauhinian valve has about the same value to the economy as the ureterovesical which we have shown to be about 10 per cent , the neuromuscular control being 90 per cent. Dr Stockard of Cornell proposed for this operation of Dr Mayo's the term "developmental reconstruction ' It means something definite. It means placing the colon in a position that it occupies when rotation occurs at about the third month of fetal life We have performed this operation twenty-eight times in all First for primary cancer of the ileocecal sphincter, for segmental polyposis for dysmorphia of the elbow-deformity type at the hepatic flexure We have performed cecosigmoidostomy six times Every case has failed We have done cecocolonic plication in seven cases simply for comparative study

Dr. J. E. Tuckerman Cleveland I would ask a question of Dr Mayo On what can he base the statistics or percentage of operability what is the standard on which he bases a percentage of operability? How can he compare percentages of operability between one surgeon and another since his own opinion as to what is and is not operable is undergoing a change? Is the operability based on the mechanical feasibility of doing the particular procedure or on the judgment of the surgeon as to whether that particular procedure is justified?

I was surprised in the discussion to learn that all adhesions are due to infections Dr Smith made that statement. I think it is hardly possible Dr Smith means that.

Dr. J S Horsley Richmond, Va Dr Lynch has spoken of the ileocecal valve being a muscle and he says that he proved this by injecting epinephrin in cases in which the ileocecal valve was incompetent and found that it caused contraction and closure of the valve Cannon and other physiologists have shown that while epinephrin causes contraction of the smooth muscle in the systemic blood vessels of the limb and surface of the body it not only fails to cause contraction of the smooth muscle of the intestine but actually relaxes it. In fact one of the most delicate tests for the presence of epinephrin is the relaxing effect it has on a segment of small intestine when attached to a recording apparatus

Dr. J W Draper, New York Epinephrin will relax the musculature of the small intestine, but contract that of the ileocolic sphincter If it is given hypodermically to an individual showing insufficiency of the sphincter it will normally close that sphincter Failure to do this may be a means of differentiating between functional and mechanical derangement of the region Dr Lynch and I resected the right side of the colon The woman was 50 years of age was in the terminal stage of arthritis, in constant pain, unable to turn over in bed, unable to use her knife and fork, unable to write The extraordinary thing was that within twenty-four hours from the colonic reconstruction that woman could turn over in bed and she herself commented on it In three days the pain was gone and she was able to sleep without hypnotics The rapidity of this clinical improvement suggests to us that there is a change in the biochemistry of the intestinal epithelium, perhaps throughout the canal, which accounts for the improvement, for it is impossible to believe that an interference with bacterial migration through the gut wall by operative removal of a diseased segment can be the only source of the improvement Only those cases should be treated by developmental reconstruction of the colon in which the most scrupulous study had excluded all other sources of infection It would be deplorable for this operation to come into general use for the treatment of arthritis

Dr J E Johnson Memphis, Tenn Dr Mayo's operation has several advantages The end of the colon cannot drop down hanging from the omentum, thus forming a pouch He saves the omentum, which has the advantage that there is less danger of adhesions His technic is good, there is less danger of infection We become bewildered with the many theories advanced as to the cause of a condition which necessitates colectomy Let us look at just what we find It is obvious that the trouble is in the ileocecal region On one side of the ileocecal valve we have the ileum, the great absorber, on the other side the cecum or sewer If we have the contents which have been retained for too long a time in the cecum, regurgitated into the ileum what is the result? We have a putrid material about one-half by weight bacteria thrown into the great absorber We have a toxic poison plus a bacterial infection The colon is built for a sewer and its mucosa has its natural defenses against the contained bacteria The ileum is built for an eater and has no such defenses From the toxic poison we get a splanchnic paralysis which is just as characteristic of this condition as drop wrist is of lead poisoning From the bacteria absorbed in the ileum, the chronic infection, a terminal ileitis and a pericolitis, result, to combat which Nature builds stronger defenses consisting of veils or membranes These membranes when rotated gather together in strong bands These membranes contract as all inflammatory tissues will, and secondly, we have the distortion It will be noted that this condition appears at no other location, they are all alike only in degree I have not seen a case of these membranes without visceroptosis nor a case of visceroptosis without these membranes I mean where I have examined the patients with the fluoroscope in the vertical position before operation This seems quite significant It will be noted that all of these patients have suffered from toxic sick headaches when they are pale sweat and vomit These headaches cannot be laid to any dietary indiscretion or the regurgitation through the imperfect ileocecal valve which causes the sick headaches in youth, and which later causes splanchnic paralysis and the formation of inflammatory membranes We have done eleven colectomies for stasis some right side and others to the sigmoid we have anastomosed the ileum into the upper part of the rectum by the end to side method of Lane Ten of these patients are living and doing well I should advocate a right colectomy in all cases in which there is no obstruction in the distal colon

Dr. Charles Horace Mayo Rochester Minn If when compiling the statistics for malignancy we disregard the patients we have turned down and those who either die immediately after operation or look forward to recurrences and accept only those who are decidedly benefited by operation, we get figures which are not a very good basis for conclusions by others as to what may be done in these fatal conditions Therefore, in Winter's statistics you must take into consideration all of the patients you see—any that you run across If you do not operate, they are in the class of those who are going to die of the disease We are trying to find out how many die of the disease and how many can be saved Sometimes the Roentgen ray is a wonderful aid We have tumors of the liver, malignant involvement of the stomach secondaries, extraordinary tumors that can be felt at the bottom of the pelvis by palpating the rectum, and extraglandular involvement in the supraclavicular fossa, so that many patients would be refused operative treatment whose condition needed something immediate Taking the whole list nd locating the disease at only one point, fixation, we used to say, meant contraindication for the possibility of cure We now know that that is wrong and, therefore, when we do not find metastasis at a distance, we now at least explore all fixed tumors of the large bowel and make most extensive operations, knowing that if we do not do it, we are condemning the patients to death and suffering Concerning some of the other points brought up, I believe the discussion has been very fair It is unfortunate that sometimes in the development of the new things in surgery their use in therapy is too greatly condemned, so that surgeons are kept from doing work along these lines for those who are suffering, and no method has been developed as yet for their relief I would like to see these innovations going on so that the men having the obsession be given sufficient amount of rope to either develop something or hang themselves

SPLENECTOMY FOR HEMOLYTIC JAUNDICE

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The past few years have shown a great increase in the interest manifested by American surgeons in the surgery of the spleen Splenectomy has been demonstrated to be a safe and effective means of curing certain diseases (for example, Banti's disease), and is extensively employed in other conditions in which its ultimate benefit still has to be proved by a more prolonged study and report of late results

Among the conditions which seem to be promptly and permanently benefited by splenectomy is the group of so-called hemolytic jaundice cases, which occur in two forms, the congenital and the acquired

The accumulating evidence of the results of splenectomy has proved the etiologic relation of the changes in the spleen to the disease The former hypothesis of essential hemolysis must be abandoned What the exact nature of the process may be is still more or less obscure, but that the spleen plays the most important part is certain The constant presence of urobilin and urobilinogen in the urine is simply an evidence of the destruction of the hemoglobin molecule in the process of hemolysis, and these substances disappear soon after splenectomy is performed

No bile is found in the urine unless there is a complicating disease of the biliary tract This complication has been noted many times

In the congenital group we have the well-recognized familial type, in which heredity plays such a striking part, and also congenital cases, in which no family history exists, but in which the jaundice appears at birth or in early infancy and persists throughout life or until relieved by operation

The acquired type forms another distinct clinical group, the symptoms of which closely follow those of the congenital type We have had three typical cases in patients on whom splenectomy has been performed in the second surgical division of the Roosevelt Hospital, since May, 1912, when the first case to be reported came under my care The patient, a young woman, aged 30, of the congenital, nonfamilial type, was the first patient on whom splenectomy was performed for congenital hemolytic jaundice in this country

Her history was as follows

F N (history No B2654), a married woman, aged 30 years, on May 6, 1912, was admitted to the second surgical division of the Roosevelt Hospital, transferred from the medical service of Dr Evan Evans Her only complaint was a mild degree of persistent jaundice, she being otherwise healthy She was one of a family of eleven, her father, mother, three brothers and seven sisters being alive and well None of them had ever been jaundiced, nor was there a history of jaundice in any branch of her family She was the first child, born at full term in normal labor Jaundice was first noticed when she was 3 days old, and this had continued all her life She had measles, mumps and whooping cough as a child, but no other illnesses Her appetite was good, she slept well, took plenty of exercise and drank no alcohol, and coffee and tea only moderately

The jaundice was present in mild degree with no other symptoms until she was about 21 years of age, when she first had an attack of deepening of the jaundice Since that time similar periodic attacks (acholuric crises) have occurred, with a general tendency to deepening of the jaundice, but with no other symptoms She has never had itching, slowing of the pulse, or any of the symptoms which accompany an ordinary obstructive jaundice

In July, 1907, in Baltimore, cholecystostomy was performed, but no gallstones or other lesions of the biliary tract were found Jaundice returned and persisted as before as soon as the biliary fistula healed

On January 22, 1909, two and one half years after the cholecystostomy, she was admitted to the Johns Hopkins Hospital, and was under observation by Dr Thayer for about two weeks A diagnosis of congenital hemolytic jaundice was made by Thayer,[1] who did not advise operation Her red cell fragility tests at that time were practically identical with those taken by us three years later Thayer stated in his comments that "in congenital hemolytic jaundice recovery is unknown, but some improvement may be obtained by persistent treatment with iron" Pathologic changes in the spleen and splenomegaly were recognized, but their definite relation to the etiology of the disease was not appreciated, and the cause of the fragility and increased hemolysis was thought to reside in the blood itself From Jan 26 to Feb 11, 1911, she was in a hospital, in New York, again for the jaundice A diagnosis of congenital stenosis of the common duct was now made, but operation was not advised From July 16 to Aug 14, 1911, she was under treatment in the same hospital, ill with typhoid fever, and from August 18 to September 12 she was back with a relapse

The persistence of the jaundice so preyed on her mind that on March 5, 1912, she was again operated on, at the Roosevelt Hospital, first surgical division, in the hopes of finding calculi or some lesion of the biliary tract No calculi were found, and no lesion of the gallbladder or ducts, a few whitish spots on the surface of the left lobe of the liver were seen, and one was excised for examination It showed simply anemic, degenerated liver cells The operation was a simple

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* The first three papers in this symposium, by Drs Lee, Minot and Vincent, Krumbhaar and Miller, appeared in The Journal, Sept 2, 1916, pages 719 to 730

* Read before the joint meeting of the Section on Practice of Medicine and the Section on Surgery, General and Abdominal, at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

[1] Thayer and Morris Bull Johns Hopkins Hosp, 1911, xxii, 85,

exploration On April 10, 1912, she was readmitted to the Roosevelt Hospital, medical division, service of Dr Evans Careful studies were made by Dr Evans and Dr Mortimer Warren, pathologist to the hospital, whose report, which follows, covers the periods before and after splenectomy

The jaundice was general, of a moderate degree, lemon yellow in color lacking the greenish tinge of obstructive jaundice The edge of the spleen was 4 to 6 cm below the costal margin

Urobilin was present in the urine but no bile Bile was present in the feces, which were of normal color The Wassermann reaction was negative

Blood examination showed hemoglobin 63 per cent, red blood cells 4,400,000 and white blood cells 8 000 The differential count showed polymorphonuclears 65 per cent, lymphocytes 20 5 per cent large mononuclears and transitionals 10 5 per cent, eosinophils 3 5 per cent, and basophils 0 5 per cent The red cells were small and of good color and there were no nucleated red cells Plates were abundant About 20 per cent of the red cells showed postvital reticulation Five fragility tests taken between March 16 and April 22, 1912 before splenectomy showed, as an average a minimum resistance of 0 72 per cent and a maximum resistance of 0 27 per cent On May 9, two days after splenectomy, test showed a minimum resistance of 0 72 per cent, and a maximum of 0 36 per cent Four tests taken from May 13 to May 25 1912 six to eighteen days after splenectomy gave as an average a minimum resistance of 0 50 per cent and a maximum of 0 32 per cent Test made Sept 9, 1912, four months after splenectomy gave a minimum resistance of 0 48 per cent and a maximum of 0 30 per cent Test Oct 8 1915 three years and five months after splenectomy, showed a minimum resistance of 0 40 per cent and a maximum of 0 35 per cent The hemoglobin, which was 65 per cent two days after splenectomy, reached 80 per cent on June 7, 1912 one month later The red blood cells at first slightly reduced were about normal Red blood cells showing postvital reticulation appeared only in moderate (normal) numbers after operation On May 9, 1912 two days after splenectomy, examination showed leukocytes 30 000, polymorphonuclears 80 per cent On Oct 9, 1912, four months after operation, examination revealed leukocytes 11,000 polymorphonuclears 53 per cent lymphocytes 22 per cent Examination of blood Oct 18, 1915, three years and five months after operation, gave as a result hemoglobin 95 per cent, red blood cells 4,204 000, white blood cells 13 000, polymorphonuclears 58 per cent lymphocytes 30 3 per cent, transitionals 7 9 per cent eosinophils 3 6 per cent, with plates abundant The red blood cells showing postvital reticulation were 0 5 per cent

On the advice of Drs Evans and Warren, and in the belief that pathologic changes in the spleen were responsible for the excessive hemolysis and possibly for the fragility of the red cells, splenectomy was performed on May 7, 1912 There were no adhesions, and the operation was technically simple and well borne

The spleen was only moderately enlarged weighing 360 gm and measuring 19 by 12 by 6 cm Gross section showed no evidence of pathologic change beyond congestion, except for the presence of numerous light-yellow firm nodules from 1 to 4 mm in diameter The surface was roughened with many light colored pinpoint spots scattered over the surface

Microscopic examination showed marked congestion, with much of the blood interstitial There was no marked increase in fibrous tissue The arterioles appeared thickened and nodules were noted in areas of sclerosis, showing with proper stain remains of elastica They were therefore sclerosed arterioles, possibly the result of typhoid Follicles were somewhat crowded out

A diagnosis was made of congestion of the spleen, chiefly interstitial Except for a mild, left sided pleurisy with effusion which developed on the sixth day and lasted about a week convalescence was uninterrupted Diminution in the jaundice could be definitely noted on the third day after operation, and by the tenth day for the first time in her life she was entirely free from jaundice and has remained so ever since The prompt and permanent disappearance of the jaundice, together with the great improvement in the red cell resistance has been most satisfactory

This case presents several striking features, among which was the marked degree of fragility of the red cells before operation and their prompt return to the normal after splenectomy, a result which has been by no means uniform in the reported cases Another was her rather checkered surgical experience, owing to the fact that her treatment coincided with the developmental stage of our knowledge of the condition, and of the etiologic relation of the diseased spleen to it As Chauffard so aptly remarks, "she was more icteric than sick," but in spite of this fact, the presence of the jaundice and the feeling that she was different from other healthy women so preyed on her mind that she persisted in her efforts to find a cure for her malady

The case presented the characteristic findings of hemolytic jaundice, as described first by Hayem[2] in 1898, by Chauffard[3] in 1907, and by Elliott and Kanavel[4] in their interesting case of the familial type and many other careful observers, namely, persistent, nonobstructive jaundice without itching, slowing of the pulse or the presence of bile in the urine, paroxysmal exacerbations of the jaundice, at times accompanied by dull, aching pain in the upper abdomen, chronic splenomegaly of a moderate degree, secondary anemia of a moderate type, fragility of the red cells of a very marked degree, with complete return to the normal after splenectomy, increase in the number of reticulated red cells to 20 per cent, which fell to normal (0 5 to 1 per cent) after splenectomy, the presence of urobilin and urobilinogen in the urine

The second case was of the acquired type, of short duration, the patient having had symptoms for only nine months preceding the operation As has been previously noted in this type, the onset of the jaundice was ushered in by an acute illness, accompanied by fever, after which the jaundice persisted and increased in degree without the occurrence of definite crises

In contrast to the preceding case, the red cell fragility in this case was not very marked, and did not change perceptibly after splenectomy The vital stain reticulation of the red cells reached 16 per cent and dropped to normal after operation The secondary anemia was moderate in degree, the hemoglobin and red cell count approaching the normal soon after operation Auto-agglutination tests were negative, as in Michelis' case, in contrast to the experience of Widal, Abrami and Brule,[5] who found it constantly positive in the acquired type, and absent in the congenital and familial types Urobilin and urobilinogen were present in the urine, and the feces were normal in color and contained bile Splenomegaly was pronounced, the spleen weighing 800 gm Splenectomy was followed by a prompt disappearance of the jaundice and a complete return to health

An abstract of this patient's history follows, and further detailed studies of the case have been published by Dr G A Friedman, from whose service at the Vanderbilt Clinic he was referred to me for operation

M T (history No B7036), an Italian a single man 18 years of age was referred from the Vanderbilt Clinic early in November, 1915, where he had been carefully studied by

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[2] Hayem Presse med 1898, i, 121

[3] Chauffard Semaine med 1907, No 3, p 25

[4] Elliott and Kanavel Surg Gynec and Obst, 1915, xxi, 21

[5] Widal Abrami and Brulé Presse med 1907, lxxxi, 641

Dr G A Friedman, who made a diagnosis of acquired hemolytic jaundice and advised splenectomy Except for diseases of childhood, the nature of which he did not know, the patient had had no previous illness He had come to America from Italy eighteen months before Jaundice was first noted about nine months before he came to the hospital, and had been persistent up to the time of admission

Examination showed a rather slender, well-nourished young man, with marked general icterus of a lemon yellow hue His spleen extended to within an inch of the umbilical level in the mammary line

The urine contained urobilin and urobilinogen, the feces were of normal color and contained bile and also urobilin

The blood examination showed a moderate degree of secondary anemia, 78 per cent hemoglobin, 4,200,000 red cells, with 16 per cent postvital reticulation, and a normal differential count Auto-agglutination tests were negative Two fragility tests before operation showed a minimum resistance of 0 48 to 0 50 per cent, and a maximum resistance of 0 30 to 0 35 per cent

Splenectomy was performed on November 23, 1915, at the Roosevelt Hospital The gallbladder and ducts, liver, stomach and pancreas were normal The spleen measured 17 by 10 by 7 cm and weighed 800 gm It was slightly adherent along the posterior border and at the upper pole, but delivered without great difficulty and the operation was well borne

The jaundice began to fade within two or three days and was entirely gone by the tenth day The patient has remained well and entirely free from jaundice since the operation

The spleen was rather soft and flabby, the cut surface was dark red and rather granular, and the trabeculations stood out prominently Microscopically, there was no increase of fibrous tissue, the follicles were of varying size, some having disappeared There was marked interstitial suffusion with red blood cells The changes in the pathology of the spleens removed have been fairly uniform and correspond with those found in previous reports There is marked interstitial suffusion of red blood cells, dilatation of splenic sinuses, loss of follicles and absence of germinal centers There is practically no increase of fibrous tissue

Six days after splenectomy the fragility test showed a minimum resistance of 0 50 per cent and a maximum of 0 35 per cent, that is, there was no change following the operation On December 20, four weeks after operation, the fragility test was the same, reticulation of the red cells was normal (0 5 per cent), and urobilin and urobilinogen had disappeared from the urine The patient gained in weight and resumed his work four weeks after the operation

This case illustrates the acquired type of hemolytic jaundice, evidently dependent on the splenic changes and on no previous etiologic factor that could be determined

The fragility of the red blood cells in this case was slight, and was practically unchanged after splenectomy

The third case was of the congenital, nonfamilial type, and the patient was operated on by my colleague, Dr James I Russell, to whom I am indebted for permission to include it in this report Only a brief abstract of the history will be given, as the case was presented to the New York Surgical Society and reported in its *Proceedings*

The patient was a man, 20 years of age, transferred from the medical service to the second surgical division on July 6, 1915 (history No 6546)

He had been jaundiced since birth, the icterus increasing up to 5 years of age, after which time it was stationary There was no history of jaundice in the family He presented the following symptoms Icterus of a fairly marked degree, nonobstructive in type, of a lemon yellow hue, secondary anemia of a mild type, 74 per cent hemoglobin, 5,200,000 red cells, red cell fragility not increased, the minimum resistance being 0 45 per cent, and the maximum 0 30 per cent, remaining unchanged after operation, reticulated red cells, vital stain, 8 per cent, splenomegaly of a marked degree, the spleen weighing 1,143 gm

Splenectomy was performed on July 10, 1915, and was followed by complete disappearance of the jaundice and a prompt recovery

In addition to the three cases cited, I have recently performed cholecystectomy for calculi with chronic cholecystitis in a typical case of congenital hemolytic jaundice of the familial type, with marked splenomegaly Both the patient and her physician were unwilling to have splenectomy performed at that time, though recognizing the possible necessity of such a procedure in the future

That hemolytic jaundice is not uncommon and that it can be cured by splenectomy are now well recognized, and recent contributions to the literature are emphasizing its importance and bringing it more and more to the attention of the profession

INDICATIONS FOR SPLENECTOMY IN CERTAIN CHRONIC BLOOD DISORDERS

THE TECHNIC OF THE OPERATION *

DONALD C BALFOUR, M D
ROCHESTER, MINN

Splenectomy has already proved a curative measure in certain diseases associated with definite blood changes, and the operation has recently been advocated for other diseases which appear to be more or less closely related to those in which the spleen is now the known causative factor The basis on which splenectomy has been suggested in these heretofore incurable conditions will be more clearly understood if we briefly review the development which has resulted in the present situation

Splenic anemia offers the most familiar example of the therapeutic value of splenectomy Sufficient time has now elapsed since the earlier operations for this disease to prove that the results of splenectomy in early or in moderately advanced cases are not only excellent, but permanent. The most interesting characteristic of the disease as concerns the purpose of this paper is its tendency to develop cirrhotic changes in the liver In fact, Banti described the disease as it appeared in its later stages when it is associated with marked cirrhosis and with ascites In such a stage, from a diagnostic standpoint, it is often difficult and sometimes impossible to determine in a given case whether the condition is the result of a true splenic anemia or of a primary liver cirrhosis associated with a large spleen Experience has shown that in the very late stages of splenic anemia definite improvement following splenectomy cannot be expected, yet it is also true that a moderate cirrhosis, even associated with ascites, has been present in some cases in which excellent results have been obtained This fact, therefore, with the probability that certain of the cases which have been classified as true splenic anemias and operation performed on that diagnosis, were in reality cases of primary cirrhosis, was responsible for the suggestion that splenectomy might prove of value in arresting the progress of selected types of hepatic cirrhosis

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* Read before the joint meeting of the Section on Practice of Medicine and the Section on Surgery, General and Abdominal, at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

The interdependence of spleen and liver is not clearly understood, yet there is ample evidence to show that some of the most important functions of the liver, for example, its hemolytic power, are more or less controlled by the spleen Certain pathologic conditions in the liver, therefore, are the result of overactivity, which may in turn be due to overstimulation by the spleen

During the last two years, with this theory as a basis, selected patients with primary hepatic cirrhosis have been splenectomized Two, at least, of four such cases of our own gave promise that the removal of the spleen might stop or retard the progress of the disease, but we are not yet in a position to state the value of such a procedure

The success of splenectomy in splenic anemia, with associated splenomegaly and severe anemia, has led to splenectomy in other diseases in which splenomegaly and anemia are characteristics One of the most interesting of these is the syphilitic spleen, we have seen good results follow splenectomy in three cases of this form of syphilis The prominent clinical features of the cases in which we believed operation to be indicated were (1) splenomegaly, (2) a history of syphilis not responding to treatment, (3) positive Wassermanns, (4) anemia It is important to note that previous to operation a negative Wassermann could be obtained under appropriate treatment, but the reaction became positive as soon as treatment was discontinued All these patients had gummas in the liver, and in the spleens removed the spirochete could be demonstrated in large numbers It was also a clinical observation that although the virulence of the infection could be more or less controlled by antisyphilitic treatment, it was not eradicated

From the foregoing facts, the conclusion may be drawn that the spleen picks up the spirochetes and harbors them, and this conclusion is supported by the surgical observation that removal of the spleen, followed by antisyphilitic treatment, results in prompt and permanent relief

The influence which the spleen exercises on the hemolytic function of the liver and spleen is most strikingly illustrated in the effect of splenectomy in hemolytic jaundice Although this disease is a problem from an etiologic standpoint, the most important therapeutic fact is that splenectomy is followed by prompt, complete and permanent cure The rapid disappearance of the icterus, which is the most obvious symptom of the disease, is an amazing clinical result, the anemia, which is sometimes severe, is also rapidly corrected

The remarkable results following splenectomy in splenic anemia and hemolytic jaundice, particularly the latter, appear to have provided the basis on which Eppinger and others have suggested that similar surgical treatment might prove of value in pernicious anemia It is important, therefore, that the relationship of splenectomy to these other diseases should be borne in mind The argument becomes more forceful if it is possible to establish similarities between any one of these diseases for which splenectomy is curative, and pernicious anemia Many of the features of hemolytic jaundice appear to have a counterpart in pernicious anemia, and in fact, Eppinger believes that the chief, and possibly the only, difference between hemolytic jaundice and pernicious anemia is that in the former the bone marrow is able to compensate for the increased blood destruction, whereas in pernicious anemia it soon loses this power, and the disease eventually is dependent on a bone marrow disability

It would, therefore, appear as a logical sequence that since splenectomy has proved a specific in hemolytic jaundice, it would sooner or later be advocated in pernicious anemia Although the first operations for this disease were performed, both abroad and in this country, about the same time (1913), to Eppinger must be given special credit for efforts to establish a scientific basis for the surgical treatment While the surgical therapeusis of pernicious anemia can be considered as on trial, it presents features of much interest and promise, and splenectomy is now being performed with a frequency which should soon permit definite and decisive deductions

It must, of course, be primarily recognized that any new therapeusis in a disease of the character of pernicious anemia must be subjected to a particularly thorough trial The extreme chronicity of the disease in its usual course, and the fact that, with or without treatment, remissions occur, during which the patient is much improved and the blood may even revert to normal, stamps any conclusions based on the early results of operation as premature This much, however, can be said, that immediate improvement follows splenectomy more consistently and promptly than any treatment heretofore used

It is on the ultimate results, however, which are as yet insufficient, that the final decision as to the real efficiency of splenectomy in pernicious anemia must rest There is at the present time, therefore, decided uncertainty as to any superior therapeutic value of a permanent character possessed by splenectomy It is also true that pernicious anemia has thus far been an incurable disease, ranking in fatality with cancer and less amenable to successful treatment The certainty of the ultimate prognosis has been the outstanding feature of our knowledge of the disease, and the doomed patient could hope only that the disease would be slowly progressive and not associated with great physical disability

The pathologic picture which Eppinger has described as distinctive of the spleen in pernicious anemia is as follows The pulp areas in the spleen, and only these, are gorged with blood Eppinger explains this engorgement as a direct result of an abnormal condition of the central artery It has been shown that the entire wall of this artery is greatly thickened, and that the greatest change takes place in the media The theory is, briefly, that sufficient obstruction results to force the flow of blood through the capillaries into the pulp areas, where the erythrocytes are destroyed If a constant pathology can be demonstrated in the spleen in pernicious anemia, it will be a great advance toward the rational treatment of the disease

While it cannot be held that the basis on which Eppinger and his followers have endeavored to establish the surgical treatment of the disease has been confirmed or even well supported by others, it is not essential, nor is it good judgment, to postpone surgical treatment of the disease until an acceptable basis for such treatment is generally recognized

The hemolytic nature of pernicious anemia is demonstrated by the increased amounts of urobilin and urobilinogen excreted It has been assumed, and there is much clinical and experimental evidence to show, that this hyperhemolysis is due to a hypersplenism, and interesting investigations are now being conducted, after the suggestion of Schneider, to determine the exact quantity of these hemolytic products by obtaining them immediately with a duodenal tube on their exit from the liver Giffin has shown, by the records of the urobilin and urobilinogen estimation in a series of cases of pernicious anemia, that the values appeared to run more or less parallel to the degree of icterus, and that in some cases at least there was a marked fall in the value of the blood-derived pigments after splenectomy It is possible that from this method information of at least prognostic value may be derived Giffin has suggested the very interesting possibility that the relation of hemolysis, as shown by he estimation of the blood-derived pigments, and the bone marrow disability, as illustrated by the blood picture, may result in deductions of decided value

The effect of splenectomy in other diseases being the primary basis for the operation in pernicious anemia, the further indications must be mainly based on operative results, and as early results only are as yet available, such indications are presented with reservation and will undoubtedly be subject to further modification

INDICATIONS FOR OPERATION

Size of Spleen —It would appear that the larger the spleen the better the prospects that splenectomy will prove of benefit It may be assumed in this disease that oversize means overactivity, and it has certainly been true, in our own experience, that the most consistently promising results following splenectomy have occurred when the spleen showed the greatest enlargement However, good immediate results have been obtained also when little or no enlargement was present The palpability of the spleen, therefore, has been looked on as one of the first considerations in discussing the advisability of splenectomy Exclusive of three cases in which the spleens were very large, the spleens in a series of thirty-seven of our cases averaged 400 gm, as compared with the normal of about 195 gm It should be remembered that any estimation of the size of the spleen before it has become actually palpable is rather speculative W J Mayo early pointed out that frequently in exploring the spleen in the course of abdominal operations, and comparing its actual size with that noted in the clinical records, it is found that clinical records are not consistently correct and as a rule are accurate only when the organ is palpable

Icteric Types of the Disease —The very intimate relationship between the spleen and the acholuric icterus as seen in pernicious anemia, hemolytic jaundice and in hypertrophic cirrhosis is proved both by operative results and experimental studies The remarkably rapid, complete and permanent disappearance of the jaundice in hemolytic jaundice, for example, following splenectomy is sufficient evidence of the splenic factor Experimentally, it is very difficult to produce toxic jaundice in spleenless dogs by those poisons which readily produce it in the normal dog In spleenless dogs under the administration of such poisons (particularly toluylendiamin) the bile remains thin and green, while in nonsplenectomized dogs it becomes viscid Stadelmann was the first to attribute such acholuric jaundice to this thickening of the bile, which delays, by very reason of its viscosity, its own passage through the finer bile capillaries A marked icteric discoloration in the skin in pernicious anemia may be taken as an indication that the spleen is to a large degree responsible for the abnormal blood destruction feature in the disease

Response to Transfusion —The transfusion of blood, particularly of small quantities at frequent intervals, has for some time been recognized as valuable treatment, though only of temporary character, in pernicious anemia It has recently become evident, however, that transfusion is not only an excellent therapeutic expedient, but that in the immediate response following the procedure, it is of distinct prognostic value in foretelling the probable results of splenectomy Definite improvement after transfusion is a strong indication for splenectomy, but when no benefit occurs from repeated transfusions, splenectomy will probably also prove futile, though the reverse of both these indications is occasionally true Transfusion seems to serve a double purpose, as does the ligation of the blood supply in exophthalmic goiter, by (1) improving the condition of the patient, and by (2) predicting rather accurately the effect of the major operation on the disease

Duration of the Disease—Although in our own experience satisfactory results may be obtained when the disease has been of long standing, we believe the results are not as favorable as those in cases in which the disease has existed a short time

Radical measures to interrupt the progress of the disease while it is yet in an early stage seem logical Although there is little positive knowledge as to the reason for the permanent disability of the bone marrow, it is probable that it is constantly overstimulated in an effort to meet the abnormal demands made on it, and also suffering from the influence of the hemolytic agent or some other toxin

In pernicious anemia, like exophthalmic goiter, the course of the disease tends to be interrupted by periods of comparatively good health and normal bodily functions Each recurrence, however, further damages the organs which are affected by the toxin, and although with the interruption of the process in its early stages there may be complete restoration to health, sooner or later, regardless of the further course of the disease, permanent injury results

The ability of man to develop other hematopoietic centers, when the normal source of the supply of blood corpuscles, the bone marrow, is under great stress, is well known Such centers have been demonstrated in the spleen, the liver and lymph nodes Whether in pernicious anemia the augmentation of the hematopoietic functions is simply compensatory by reason of the increased blood destruction of the disease, or whether the bone marrow, under the influence of some specific toxin, is primarily diseased, so that immature red cells are put into the circulation, is as yet problematic It is more than possible that pernicious anemia could be cured in its inception, like cancer, if treated properly, when it is well established, a vicious circle is produced and a permanently disabled hematopoietic system is added to the primary etiologic factor or factors The question of permanent cure in pernicious anemia, therefore, may ultimately depend, not only on interrupting the progress of the disease by removing what appears to be the primary factor, but also to a greater extent on our ability to restore the bone marrow and other hematopoietic structures to their normal physiologic functions It is to be hoped that earlier recognition of pernicious anemia will result in earlier splenectomy

Activity of the Disease—The activity of the disease is an important consideration in discussing the advisability of operation Splenectomy should be undertaken with hesitation in acute stages of pernicious anemia and especially with a falling blood picture The operation cannot at the present time be advocated when cord changes and other permanent pathologic processes mark the terminal stages of the disease Moreover, as already suggested if it is not possible to tide a patient over the critical periods by transfusion, splenectomy is contraindicated. Definite statements based on the qualitative blood picture cannot be made but if the hemoglobin is under 25 per cent and cannot be raised, operative treatment is of considerable risk and has doubtful results

The extent of the disability of the patient must of course be carefully considered If a patient with every evidence of the disease is able to carry on his usual occupation, splenectomy cannot be strongly advocated yet these may be the very patients in whom good results may be obtained. The operation may be urged more legitimately when the patient is unable to do his work or is a chronic invalid

A positive diagnosis of pernicious anemia having been made and the advisability of splenectomy established it is important that the patient and his family be correctly informed as to the purpose and the status of splenectomy

Splenectomy we have found of less technical difficulty in pernicious anemia than in any other disease or condition An incision toward the outer edge of the left rectus extending above to about one inch from the costal margin and below to the level of the umbilicus is satisfactory An abdominal exploration should first be made, especially in view of the frequent complications of liver and gallbladder met with in those diseases for which splenectomy is advocated

The dislocation of the spleen from its position against the diaphragm and against the left kidney is not as a rule, complicated by formidable adhesions in pernicious anemia nevertheless, the operation is facilitated and the minor oozing points are controlled by the introduction of a large abdominal pack against the newly exposed surface In the actual removal of the spleen it must always be borne in mind that the stomach and pancreas are in close anatomic relationship The fundus of the stomach is in such immediate apposition to the gastric surface of the spleen that its wall may be injured if the gastrosplenic omentum at this point is not divided with particular care

The tail of the pancreas does not bear a constant relationship to the splenic pedicle In some instances it lies in front in others behind, and it may extend along the pedicle until its tip rests in the hilus of the spleen. It is quite evident in certain cases that the tip of the pancreas must be dislodged from its position if the pedicle is to be ligated without injury, although such a condition is relatively unusual in pernicious anemia The pedicle is rarely of sufficient size to present any difficulties in its control It is comparatively easy to isolate the artery and the veins and ligate them independently Although it has been advised that the artery should be ligated first in order that the spleen may empty itself of its blood and although I have done this in some cases I have never been able to observe any difference in the convalescence or the effect of splenectomy on these patients as compared with those in whom the artery and veins were ligated at the same time

All bleeding points having been securely controlled, the pack is removed and the diaphragmatic surface inspected

SUMMARY

We believe that splenectomy should be considered in every case of pernicious anemia in which the diagnosis has been established and all possible etiologic factors which might be independently remedied have been excluded The failure of other means to combat the disease, the previous fatal prognosis, and the low operative mortality are strong arguments in favor of splenectomy Contraindications must be positive and adequate Granting this, however, we must be cautioned by our imperfect knowledge of the surgical indications The conservative selection of cases is therefore advisable

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PERNICIOUS ANEMIA TREATED BY SPLENECTOMY AND SYSTEMATIC, OFTEN-REPEATED TRANSFUSION OF BLOOD

TRANSFUSION IN BENZOL POISONING *

ROY D McCLURE, M D
DETROIT

Transfusion of blood in cases of pernicious anemia is perhaps the first remedy that suggests itself for the treatment of the malady It probably was tried long before it is recorded in the literature Since the newer ways of transfusion with syringes and the citrate method have so simplified the operation, it has been tried innumerable times, but with only indifferent success The best it has accomplished has been to initiate a remission in the course of the disease There are many reasons why these transfusions have not been of more value Chief among these is the lack of systematic treatment Usually about as much good is accomplished by a single transfusion as is accomplished by a single inunction of mercury in the treatment of syphilis Discredit has also been incurred by using blood which has not stood the proper tests and which is not only unsuitable but is often positively harmful and which may result in disaster

The practice of transfusion of blood since it was first performed in man in 1666 by Jeane Baptise Denys, professor of philosophy and mathematics in the Royal University in Paris and physician to Louis XIV, and by his teacher Dr Lower[1] in London, who had developed the method by his work with his experiments on animals in 1660, has passed through periods of great disrepute At first it fell into disfavor because the blood of animals, dogs, sheep and calves was used and there were probably deaths from anaphylaxis The road to safe transfusion was not made possible until Landois[2] in Greifswald in 1870 discovered that the blood of one man was not always compatible with the blood of others, though I believe he never explained it, yet he did show that the serum of one animal might dissolve the red blood cells of another animal It remained for Moss[3] in this country and for Landsteiner[4] and Jansky[5] abroad to show that the blood from two individuals may not mix well, due to the following facts

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* From the Surgical Clinic of Dr W S Halsted Johns Hopkins Hospital

* Read before the joint meeting of the Section on Practice of Medicine and the Section on Surgery General and Abdominal at the Sixty Seventh Annual Session of the American Medical Association Detroit, 1916

[1] Philosophical Transactions and Collections of Medical and Philosophical Papers John Lowthrop 1731

[2] Landois Die Transfusion des Blutes 1875

[3] Moss Bull Johns Hopkins Hosp 1910 xxi, 63

1 That the red corpuscles of one or of each may be clumped by the serum of the other

2 That corpuscles clumped in this way may be hemolyzed as well

3 That all human beings soon after birth may be grouped into four distinct classes, depending on the ability of their serum to agglutinate the red corpuscles of members of the other groups and on the susceptibility of their corpuscles to agglutination by the serum of members of the other groups

TABLE 1—RESULTS OF TRANSFUSIONS IN CASE OF SECONDARY ANEMIA FROM BENZOL POISONING (SUTURE METHOD)

No	Date, 1914	Hemoglobin per Cent			Red Blood Cells		
		Before	After	Increase	Before	After	Increase
1	5/ 3	20	38	18	1,226,000	1,680 000	454 000
2*	5/17	28	48	20	1 117 000	1 971 000	864 000
3	5/23	20	40	20	910,000	1,856,000	946,000
4†	5/31	11	42	31	0	0	
5	6/13	48	65	17	3 476 000	4,528,000	1,052,000

* Defibrinated blood
† Patient bleeding, comatose

In the selection of a donor little attention for a time was paid to the fact that the serum of an individual in one group hemolyzed and agglutinated the cells of a person in another group Some men doing transfusions wrote as late as 1912 that the action of one blood on another was not necessarily the same in vitro as in vivo, and they rather scoffed at these tests This attitude could only do harm to the reputation of transfusion as a therapeutic measure I know that deaths have occurred as the result of transfusion when the tests were ignored or improperly performed Even when the tests were properly performed and the bloods reported compatible, we have had one case of severe hemolysis On returning to the laboratory tests we found that agglutination was present at the end of one hour, but we had accepted the report as favorable at the end of a half hour Therefore, we concluded that the report of compatibility can not be safely made under an hour

In an extended series Moss has found that the relative frequency of the groups is as follows Group 1, 8 per cent , Group 2, 36 per cent , Group 3, 9 per cent , and Group 4, 47 per cent Gorham and Lisser[6] found that the serums of the various groups differed in the rapidity with which they brought about agglutination of the corpuscles of the other groups Thus Group 4 required five minutes or less, Group 2 often fifteen minutes to half an hour, and Group 3 still longer for positive identification

The selection of a proper donor is therefore a very important matter, and often rather difficult if the patient belongs in one of the rarer groups, 1 or 3 It is also imperative that transmissible diseases be ruled out by history, blood examination, Wassermann, etc I wish to report here for the first time the transmission of syphilis by transfusion in a case of pernicious anemia The donor was a close relative of the patient and before giving his blood denied having syphilis and also denied exposure to infection Less than six weeks after this transfusion the patient returned with the most virulent syphilitic rash and mucous ulcers At the same time the secondary eruption appeared in the donor It then developed that the donor had a primary sore at the time he gave the blood Malaria was transferred in one of the early cases by a transfusion of defibrinated blood It was in the quiescent stage in the donor, but flared up in the recipient

Transfusion has usually been carried on in cases of pernicious anemia in a very desultory or sporadic fashion, and as we have pointed out, often without proper donor being selected, consequently it was soon regarded as of little value in this disease

Our attention was first drawn to the great value of repeated transfusions, in 1914, in the treatment of benzol poisoning

On the service of Dr L F Barker at Johns Hopkins Hospital in 1909 there were admitted the first of a series of cases of benzol poisoning The patients were girls employed in a canning factory in Baltimore Benzol (benzene, C_6H_6) was used in dissolving rubber and the fumes resulted in the poisoning of the workers The symptoms are a severe purpura hemorrhagica with a severe anemia of the aplastic type Several transfusions were performed among these cases, but as there was only temporary improvement, if any, the procedure was regarded as of little value Several patients died soon after admission The following case we report, as the result of each transfusion was so striking, one of the operations so plainly saving her from immediate death Our previous results had been so discouraging, as the improvement of a single transfusion was so temporary, and we were ready to give up The family of the patient, however, saw the enormous immediate benefit of each transfusion and insisted that we continue with this treatment They produced the donors, so we always had suitable blood Much to the surprise of all of us she soon ceased to require transfusion and made a complete recovery

S H, a woman, aged 31 years, worker in a canning factory, admitted to the hospital May 1, 1914, complained of bleeding from the nose and mouth A diagnosis of benzol poisoning and secondary anemia was made Her family history was unimportant Her present illness began with an onset seven weeks before entrance (early part of April, 1914), with a feeling of weakness and bleeding from the nose The hemorrhage usually lasted from one-half to two hours Black and blue spots appeared over the body, followed by shortness of breath, bleeding from the gums and loss of appetite

TABLE 2 —RESULT OF TRANSFUSIONS IN SEVENTEEN CASES OF PERNICIOUS ANEMIA SIXTY FOUR TRANSFUSIONS BEING MADE WITH NO DEATHS *

Result	Number	Per Cent
Beneficial	34	53
No benefit	23	35
Harmful	7	10
Severe reactions	7	10
Slight reactions	12	19
Chill	7	10
Dilated heart 24 hr after transfusion	1	1½
Jaundiced	1	1½
Hemoglobinuria	3	4½
Temp elevation over 101	12	19
Skin eruptions	7	10

* Splenectomy was performed in six cases

On examination the woman was found to be pale and obese There was bleeding from the margins of the gums There was no general glandular enlargement The lungs were clear, the heart slightly enlarged A systolic blow was perceptible at the base Numerous purpuric spots were distributed over the body, and there was slight edema of the extremities

On May 2, 1914, the red blood cell count was 1 460 000, white blood cell, 1,110, hemoglobin 25 per cent , polymorphonuclears, 40 per cent , mononuclears 37 per cent , transitionals, 15 per cent , no nucleated red blood cells, no myelocytes Platelets were almost absent Bleeding time fourteen and one-half minutes, normal time is one-half to two minutes

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[4] Landsteiner Wien klin Wchnschr , 1901, xiv, 1132

[5] Jansky Klin sborn , 1907, No 2, abstr , Jahresb f Neurol u Psychol , 1907

[6] Gorham and L [illegible] Am Jour Med Sc , 1912, cxliv, 103

Transfusions were done by the Carrel end-to-end method The results are shown in Table 1

After each of the first three transfusions she rapidly lost what she had gained and unfortunately another transfusion was not done until she had slipped back The fourth transfusion was all but too late A massive transfusion was done, probably 1,500 c c or more of blood being given, and there was a great rise in hemoglobin (We were still using the end-to-end suture method, so no measurement of the quantity of blood could be made) Normoblasts and nucleated red cells made their appearance and after the next transfusion (donor a negro man) the patient made an uneventful recovery, and was discharged from the hospital July 26, 1914

TABLE 3—EFFECT OF TRANSFUSIONS ON THE PATIENT T A, CASE 1

No	Date 1915	Amt C c	Hemoglobin per Cent			Red Blood Cells		
			Before	After	Change	Before	After	Change
1	3/ 9	700	25	33	8	1 428 000	1 920 000	492 000
2	3/26	750	54	67	13	2 128 000	2 440 000	312 000
3	7/ 3	650	29	40	11	840 000	1 656 000	816 000
4	7/10	675	32	41	9	1 296 000	2 128 000	832 000
5*	7/24	700	35	?	?	1 884 000	?	?
6	8/ 8	700	29	45	16	?	?	?
7	8/27	700	40	60	20	1 888 000	3 220 000	1 332 000
8	9/ 1	652	50	60	10	1 960 000	3 088 000	1,128 000
9	9/ 3	675	60	70	10	3 088 000	3 144 000	56 000
10	9/ 9	675	60	65	5	2 424 000	?	?
11	9/11	880	65	75	10	2 424 000	3 688 000	1 264 000
12	9/23	770	80	85	5	3 632 000	4 432 000	800 000
13	10/ 7	675	80	90	10	4 928 000	5 280 000	352 000

* Splenectomy was performed following fifth transfusion

Jan 17, 1916, the patient has remained well, the hemoglobin being 95 per cent , red blood cells, 4,272,000

This led us to believe that perhaps steady use of carefully planned transfusions persistently used to prevent the anemia and its results might be of benefit in pernicious anemia We advocate, too, splenectomy

Since Eppinger in May, 1913, first called attention to the very beneficial effect of splenectomy in pernicious anemia, it has been widely performed American surgeons have reported often great improvement, but probably no cure It is unnecessary to discuss it further after the papers of this symposium Eppinger regards splenectomy as the most important measure in the treatment of pernicious anemia

Table 2 shows a brief resume of our transfusions in pernicious anemia As will be seen, splenectomy was carried out in only six of these cases, three by Dr Finney and three by myself

The transfusions that resulted harmfully or were of no benefit we feel due to improper matching of the blood This resulted in still greater care in the selection of donors In the earlier cases, little benefit resulted from the fact that only a single transfusion was done We will report only three cases here as there is not space for all

Case 1—T A, aged 38, was admitted to the hospital Feb 22 1915, complaining of progressive weakness A diagnosis of pernicious anemia and pyorrhea alveolaris was made The family and personal history were unimportant The present illness had its onset in June, 1914, with weakness, followed by loss of appetite constipation, nausea and vomiting, and a loss of weight of 24 pounds There was dyspnea but no nervous system symptoms

Blood examination made Feb 22 1915, showed red blood cells 1 584,000, white blood cells 4,560 hemoglobin, 32 per cent The color index was high, the differential count, 70 per cent polymorphonuclears, mononuclears, 25 per cent, 1 nucleated red blood cell

On Jan 17, 1916, blood examination showed hemoglobin 93 per cent , red blood cells 3,728,000, polymorphonuclears 77 per cent , small mononuclears 10 per cent

Case 2—J B, a woman, aged 43, was admitted to the hospital, Sept 10, 1915, complaining of weakness, shortness of breath, and pallor A diagnosis of pernicious anemia was made The family history was negative The personal history of the patient showed that the bowels were regular, and that she had had two miscarriages Otherwise the history was unimportant

The patient had had cystitis for two years, appetite poor, with a burning sensation of tongue and mouth The temperature was from 99 to 101 There had been some dizziness for six months A roaring sensation in ears had been noticed for two months There was slight edema

On examination of the patient the mucous membranes were found pale, the blood pressure was 150 mm of mercury systolic, 80 diastolic, the temperature was 100 4 There was an impaired percussion note at the apexes of the lungs, but no rales The heart was slightly enlarged A systolic murmur was heard at the apex The liver was not enlarged and the spleen could not be felt There was no general glandular enlargement The reflexes were normal The stools were negative

Blood examination showed hemoglobin 27 per cent , red blood cells 1,136 000, white blood cells 3,560, polymorphonuclears 66 per cent , eosinophils, 0 5 per cent , basophils, 0 5 per cent , small mononuclears, 27 5 per cent , large mononuclears, 3 per cent , transitionals, 1 per cent , myelocytes, 1 per cent , myeloblasts, 0 5 per cent

On September 12 the hemoglobin was 29 per cent , white blood cells, 2 000, red blood cells, 944,000 There were fresh hemorrhages in both eye grounds The Wassermann was negative Gastric analysis showed hydrochloric acid deficit 8 per cent , total hydrochloric acid 2 per cent

Case 3—H P, a widow, white, aged 62, was admitted to the hospital Jan 3, 1916, complaining of weakness and lack of blood Her family and personal history were unimportant Previous to her present illness she had always been healthy and strong The onset occurred in January, 1914 There was increased frequency of urination A few weeks later there was weakness of the knees, progressive shortness of breath, and for three weeks, pain over the heart There had been no fainting or giddy spells, she had lost 37½ pounds in weight

TABLE 4—EFFECT OF TRANSFUSIONS ON THE PATIENT J B CASE 2

No	Date 1915 16	Amt C c	Hemoglobin per Cent			Red Blood Cells		
			Before	After	Change	Before	After	Change
1	9/25	800	20	35	15	680 000	1 520 000	840 000
2	9/30	900	35	45	10	1 664 000	2 048 000	384 000
3	10/ 9	900	55	76	21	2 240 000	3 520 000	1 280 000
4	10/16	900	76	85	9	2 432 000	4 176 000	1 744 000
5	10/24	20	85	52	33*	4 176 000	2 672 000	1 504 000*
6	10/30	900	47	62	15	3 624 000	4 000 000	376 000
7	12/11	788	22	40	18	648 000	2 158 000	1 510 000
8	12/14	900	42	55	13	2 450 000	3 158 000	708 000
9	12/18	800	?	?	?	?	?	?
10	12/21	280		48			3 000 000	
11	12/30	550	53	48	5*	1 900 000	?	?
12	1/22	500	51	70	19	3 368 000	3 648 000	280 000
13	1/12	660	74	78	4	3 792 000	?	?
14	1/14	270	78	82	4	?	?	?

* Lost due to hemolysis

Examination showed a woman of large frame, with dyspnea on slight exertion There was a lemon color to the skin and evidence of recent loss of weight, no general glandular enlargement teeth practically all gone, chest symmetrical, costal angle almost straight No rales, *region* of cardiac dulness extended 4 5 cm to the right and 11 *cm* to the left of the midline There was a systolic murmur at the base of the heart and a diastolic murmur over the vessels of the neck The blood pressure was 118 mm of mercury systolic, 60 diastolic The liver was *not* enlarged, and the spleen could not be felt The reflexes were difficult to obtain There were no sensory disturbances Rectal examination was negative Red blood cells were 936,000, white blood cells, 5,440, hemoglobin 26 per cent , polymorphonuclears 50 per cent , eosinophils, 0 4 per cent , basophils, 0 4 per cent , small mononuclears, 28 8 per cent , large mononuclears, 2 8 per cent , transitionals 0 8 per cent , myelocytes 13 6 per cent , unclassified, 3 2 per cent , red blood cells January 7, 1,088,000, hemoglobin 25 per cent , Gastric analysis showed no free hydrochlorates, stool examination was negative, eye grounds normal except for pallor of the disks January 10, red blood cells 1,288,000, hemoglobin 23 per cent

TABLE 5—EFFECT OF TRANSFUSIONS ON THE PATIENT *H P*, CASE *3*

No	Date, 1916	Amt C c	Hemoglobin, per Cent			Red Blood Cells		
			Before	After	Change	Before	After	Change
					Loss			
1	1/12	200	26	23	3	1,224 000	1,440,000	216,000
2	1/21	300	21	26	5	1,440,000	1,448 000	8,000
3	1/24	682	29	36	7	2,352,000	2,608,000	256 000
4	1/26	640	36	50	14	2,352,000	2,416,000	64,000
5	2/ 2	630	50	55	5	2,416 000	2,434,000	18 000
6	2/ 7	600	54	65	11	3,040,000	4,680,000	1,640,000
7	2/19*	450	65	?	?	2,482,000	2,726 000	244,000
8	2/26	360	63	?	?	3 072,000	?	?
9	3/ 6	500	70	76	6	3,752,000	3 824,000	72,000
10	3/13	450	71	86	15	3,584,000	4,736,000	1,152,000

* Splenectomy was performed February 12

The repeated systematic transfusion has been carried out only during the past year The results, however, have been so encouraging that we feel that the life of a patient with pernicious anemia may be indefinitely prolonged if the spleen is removed as soon as the patient is in condition to stand the operation, and sometimes we have to transfuse several times before splenectomy

After the spleen is removed if there is not a rapid improvement in the blood picture, we would advocate transfusion until the hemoglobin is as high as 90 per cent or more, never allowing it to fall below 75 per cent As remissions often last several months or a year, not many transfusions may be required It is well known that anemia so reduces the resistance of the body, to infections that it is often an easy prey Thus can the usual secondary causes of death in pernicious anemia be avoided, and who can tell but that within a few years of persistent transfusions the primary cause, whatever it may be, of pernicious anemia may lose its force and perhaps the disease be cured

Henry Ford Hospital

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS LEE, MINOT AND VINCENT, KRUMBHAAR, MILLER, PECK, BALFOUR AND MC CLURE

Dr Frank Smithies, Chicago During the past two and a half years in the clinics of Drs Percy and Ochsner we have treated twenty-seven cases of pernicious anemia by multiple transfusion of whole blood and splenectomy Our cases have strongly impressed on us the value of the observations of William Hunter with respect to the toxic or even the infectious nature of the ailment Just what effect on the hematopoietic tissues may be produced by a periodically recurring low grade infection it is not at present possible to fully state Of peculiar significance, in my opinion, is the fact that in practically all of our cases, infective foci were demonstrable The removed spleen showed evidences of chronic splenitis and perisplenitis, indicating that a toxic or infective process had been chronically going on It has not been possible to culture organisms from the blood or the tissues It would seem that work similar to that which Rosenow has carried out in tissue culture will at some time demonstrate organisms which at present escape detection The term "treatment by splenectomy" is, I think, misleading and incomplete The splenectomy is merely one part of the treatment and frequently a part of the treatment which may perhaps later on be proved to be the least essential The routine of treatment which we have emphasized is multiple, massive transfusions of whole blood, eradication of local foci of infection wherever such may exist, and lastly, *laparotomy for removal of the* spleen and other tissues evidencing chronic subinfection

Multiple blood transfusions supply protective antibodies and enable the patient to get rid of the secondary changes which have been going on in the various organs They improve the blood in quantity and quality They thus bring the patient to his splenectomy as a fair to good operative risk *During the multiple blood transfusion the patient can* be treated with regard to self-evident infection The operative procedure then becomes relatively safe Of the twenty-seven cases operated on by Dr Percy there were but two operative deaths, and one other death within three months following splenectomy I attribute this rather remarkable experience to the fact that the patients were carefully prepared for the major operation I attribute many of the poor results following splenectomy in pernicious anemia to the patient's being rushed into splenectomy before he has been properly prepared as a surgical risk Ninety per cent of the cases which I observed showed subinfections in the gallbladder or appendix and all showed evidences of chronic infection in the spleen

The effects on the blood in the cases I have studied are: In cases that have run from four to twenty-seven months following our treatment there has been an average hemoglobin gain of 43 per cent , an average gain of red cells of 3,322,000, and this gain has in general been well maintained Study of blood smears shows an absence or diminution of nucleated red blood cells of 94 per cent There was a decrease in the color index in 68 per cent There was a permanent increase in the leukocytes in 88 per cent , a decrease in coagulation time in 66 per cent , a decrease in polychromatophilia in 56 per cent, and the establishment of a relative polymorphonuclear leukocytosis *in 61 per cent* , a reduction, relatively, in lymphocytosis in 55 per cent, and a definitely demonstrable gain in blood platelets in 61 per cent Patients frequently improved, clinically, out of all proportion to the apparent improvement in the blood picture The permanence of these results no one can at present state One patient treated twenty-seven months ago is in most excellent shape after having been a useless invalid for more than two years previously

Dr Beth Vincent, Boston Transfusion is so often combined with splenectomy in the treatment of pernicious anemia that they may be considered together in discussing the effects of splenectomy At the Massachusetts General Hospital we always test donor and recipient before transfusion in pernicious anemia and use as donor a person of the same blood group as the recipient We transfuse on an average of 600 c c of blood in these cases and believe that a relapse which does not show a tendency to spontaneous remission is an indication for transfusion Some of our patients were transfused before splenectomy and others received transfusions afterward in the relapses which eventually occur in these cases Dr Minot has called attention to the increased activity of the bone marrow which follows splenectomy and is shown by the appearance of Howell-Jolly bodies, a rise in the leukocyte count and an increase in the blood platelets and reticulated reds A similar change may be observed after transfusion and appears on the fourth to tenth day This furnishes the most favorable time to do a splenectomy in these cases which have been transfused in preparation for the operation The mortality of splenectomy an pernicious anemia should be very low, provided the right stage of the disease is taken to do the operation I feel that it is a mistake to remove the spleen in a relapse Such a case should be transfused and not operated on until it has reached the stage of improvement There is a type of pernicious anemia, one whose course is steadily downward without remissions which does not improve with transfusion and, in our experience, this type of case shows very little change after splenectomy As to results, the figures in our series of 15 cases agree with those given by Dr Krumbhaar The immediate effects of splenectomy are often strikingly favorable but the longer the cases are followed the less encouraging they become

Splenectomy is capable of bringing about a satisfactory remission of considerable duration It may last six months and rarely lasts a year After this period the disease resumes its normal course Removal of the spleen does not prevent the recurrence of relapses or alter their severity I doubt whether it prolongs the patient's life unless the case is followed to the end and transfused in the relapses Transfusion is undoubtedly the best treatment for a relapse It does not give such a permanent result as splenectomy but makes the patient more comfortable and probably prolongs his life Therefore splenectomy and transfusion are palliative not curative Splenectomy diminishes blood destruction and both splenectomy and transfusion are followed by bone marrow activity which brings about a temporary symptomatic improvement This benefit is temporary and not always certain but nevertheless transfusion and splenectomy are the most effective means we have at the present time for the treatment of pernicious anemia

Dr Herbert Ziegler Giffin, Rochester, Minn This symposium is very important at this time because it crystallizes our ideas in regard to the present status of splenectomy for pernicious anemia I can only add our own experience to that which has been given It is almost exactly in line with the results that have been reported Thirty-nine cases have been operated on with an operative mortality of 3 (77 per cent) There is apparently no reason why the operative mortality for pernicious anemia should be high There have been four postoperative deaths, leaving thirty-two living patients Five patients are at present in relapses so of thirty-nine cases there are twenty-seven patients in good or fairly good condition One patient lived as long as three years The longest period during which patients have maintained a good condition is one year, which occurred in two instances Preoperative transfusions have been given preparatory to operation to improve the general condition of the patient, to initiate if possible an upward wave and to improve the characteristics of the blood count One can predict that four patients out of five will show a very marked gain after splenectomy and it would seem that they should be given the opportunity to have this gain without very strenuous postoperative treatment We have given postoperative transfusions only in relapses I wish to speak here especially of the examination of the duodenal contents of pernicious anemia patients for the blood derived pigments We have followed up the work of Schneider reported in January in the *Archives of Internal Medicine* in thirty-three cases of pernicious anemia and have obtained high values for urobilin and urobilinogen in the duodenal contents by the Wilbur and Addis spectroscopic test in all but three In 12 cases examined a short time after splenectomy ten gave very low value We have examined the duodenal contents for blood derived pigments in nineteen cases of a miscellaneous group with secondary anemia and have obtained low values In four cases of hemolytic jaundice three have shown high values This test may prove to be important in the study of patients with pernicious anemia For instance if a patient shows high hemolytic values in the duodenal contents and is able, in spite of active hemolysis, to maintain a good blood picture he should be a favorable case for splenectomy for splenectomy is followed by a reduction of the hemolytic values With splenic anemia our experience is of thirty-three cases The results are uniformly good With hemolytic jaundice our experience is of ten cases with one death In hemolytic jaundice there has been a very great improvement in the general condition of the patient, the jaundice and the anemia We have one patient in excellent condition who was operated on eight years ago One case of acquired hemolytic jaundice presented a pernicious anemia blood count Cases of hemolytic jaundice in adults which show a pernicious anemia type of blood count are particularly interesting because of a possible close relationship between the two diseases

Dr W S Thayer, Baltimore My first experience in which I had a splenectomy done in pernicious anemia dates from three years ago next November That patient had already had distinct signs of spastic paraplegia She made what appeared to be a complete recovery from the standpoint of her anemia and remained well for a year and a half Her cord changes failed to progress Then, in about two or three months, she rapidly went down hill with a relapse and died from a characteristic pernicious anemia I felt that while we had only succeeded in producing a remission of the anemia that we had for the first time in my experience done something which arrested the progress of the cord changes and yet Dr Krumbhaar is able to tell us that, as a rule, the cord changes have progressed without respect to the operation Dr Miller had an instance almost opposite to mine, that is the anemia improved, but the cord changes grew rapidly worse With splenectomy there is a temporary improvement in the majority of instances The best figures show a considerable mortality from the operation One is tempted to regard pernicious anemia as inevitably fatal and one is justified in seeking any remedy which may bring improvement There are cases of long remissions — McPhedran s of sixteen years, others of shorter time I myself saw one of five years and the patient died of another malady We never need be utterly hopeless with regard to pernicious anemia and one must consider very carefully before advising splenectomy We do in most cases accomplish a little something which we may not be able to accomplish under other circumstances, but it ought to be put very directly to the patient and it seems to me we should go very slowly in advising so serious a procedure In regard to splenic anemia, particularly those with violent gastric hemorrhages the results did not seem to be uniformly beneficial My experience has been quite in accord with that of the other gentlemen who have spoken In hemorrhagic jaundice the results appear to be almost uniformly beneficial but there again one ought to consider very seriously the question of operation before advising definitely to have it done If we are dealing with a case of congenital hemolytic jaundice as a rule the symptoms are not grave I have three cases now under observation in all of which the patient does not suffer much There is a large spleen and a continued jaundice of greater or less degree quite endurable so endurable that in none have I felt like advising splenectomy One of these patients who underwent appendicitis associated with the removal of stone from the gallbladder withstood the operation as well as a healthy person and, indeed three weeks after the operation the fragility of the blood was less than it was before One should not urge an operation The jaundice may be so serious and the anemia grave enough to justify it In instances of acquired hemolytic jaundice it may be that the anemia is serious enough to make the operation almost imperative These methods of transfusion have rendered the possibility of doing splenectomy in grave anemia a relatively simple matter where previously it would have been absolutely impossible I remember an instance of splenic anemia operated on by Dr Finney, in a small boy, where he had waited six months that he might develop a good color Finally the boy s condition became so serious that he was transfused and taken to the operating room practically moribund and transfusion was done while operation was being carried out By the end of the operation the arteries were spurting and the boy made a perfect recovery following the operation

Dr G A Friedman, New York I shall limit my remarks to hemolytic jaundice It is the third case of Dr Peck to which I refer The patient stated that he was sick for eight months and on close questioning, no other illness could be elicited except that when he was very young he had a fever which lasted for several days There was undoubtedly no hereditary tendency in this case When first seen I would say that he was more icteric than sick, and practically, he came to the clinic not so much for his symptoms, as for his jaundice One of my co-workers on first examination suggested catarrhal jaundice It is very important and especially so in cases of young people that the first thought that should come to the mind should be catarrhal jaundice But an icterus which begins acutely with enlargement of the spleen should suggest hemolytic jaundice We know well, however, that in a proportion of cases of catarrhal jaundice the spleen is enlarged and not the liver But on considering more carefully the history in the case at hand, one must see that we are dealing with an entirely different condition There was an absence of pruritus during the entire period of the illness — eight months The absence of bile in the urine, and the presence of urobilin and urobilinogen, the presence of bilirubin in the blood, and the presence of bile in the stools, are aids in the diagnosis The anemia here, however, was not marked The resistance of the red blood cells to hypertonic salt solutions was only slightly diminished It was between 0 35 to 0 45, but the percentage of the reticulated red cells was increased The result of the operation was marked Patient was practically free from jaundice on the fourth day after the splenectomy and on the eighth day there was no trace of it I saw him at the end of last March There was no jaundice and the patient was well The medical treatment is absolutely without any benefit

Dr Samuel J Meltzer, New York I wish to point to a possible factor which, as far as I know, has not been referred to either in the experimental or in the clinical work on the subject We know that the red corpuscles run in the middle of the blood stream and are, therefore, as a rule, not exposed to any kind of shocks Some forty years ago I saw a fragile red corpuscle riding on the ridge formed by two dividing arteries The blood cell was finally broken into two fragments It then occurred to me that the blood corpuscles while passing through the spleen must be subject to innumerable shocks The blood, after leaving the renal artery, passes through a considerable amount of alveolar tissue, before it enters into the renal veins The blood cells in their rapid run through these tissues must continually come in conflict with some jarring ridges This gave me the notion that fragile red blood corpuscles may readily break down in the spleen or may be prepared to give up some of the hemoglobin, and that some of the nucleated cells may lose their nucleus there I was also thinking that the mechanical shocks which the white corpuscles receive while passing through the irregular arrangement of the alveolar tissue may be affected, it may possibly hasten their natural division These considerations were the starting point for many of the investigations on the effect of shaking on red cells, bacteria, ferments and toxins The first investigation of this kind was carried out in 1884, together with Dr Welch In the course of the last year Dr F L Gates studied in our laboratory at the Rockefeller Institute the effect of shaking on red cells of splenectomized dogs I am not ready to report here his results I merely wish to call the attention of those who are interested in this subject that the mechanical effect of the alveolar construction of the spleen may have a certain influence on the red blood corpuscles, at least in pathologic conditions of the blood, and may be, therefore, a potent factor in certain forms of anemias

Dr Roger I Lee, Cambridge, Mass The ordinary course of pernicious anemia is very bizarre, although it is next to impossible to tell from a few cases whether the effect of a particular therapeutic agent is favorable or not The blood picture in pernicious anemia may be said to correspond roughly to blood destruction and blood formation The same thing holds true of hemolytic jaundice and splenic anemia We have studied splenectomy and transfusion from the point of view of the effect of stimulating the bone marrow activity by the method that Dr Minot outlined We have used no particular method, but we have used those general comprehensive estimates of all these methods We do not think, for example, that the reticulate cells alone are of very great value, but the qualitative changes in the reticulate cells, especially with the blood platelets and white corpuscles, give us good information in regard to the bone marrow After splenectomy and after transfusion we always get a slight tendency toward stimulation of the bone marrow That stimulation of the bone marrow varies a great deal It is much more constant It is much more constant and energetic after splenectomy than after any other therapeutic procedure The benefit of transfusion is to furnish bulk of blood which may then be destroyed very rapidly, but the main benefit of transfusion is to inaugurate a remission which means merely to stimulate the bone marrow and it is only by following the patients that we can tell whether they are benefited or not We merely say that after splenectomy rather constantly and after transfusion occasionally one does see the signs of a stimulated bone marrow

Dr E B Krumbhaar, Philadelphia It has been generally accepted not only that blood transfusions are a valuable prelude to splenectomy, but that in themselves they constitute an efficient method of combating pernicious anemia In fact it remains to be proved whether or not equally good results would not be obtained by repeated transfusions in the absence of splenectomy, although the impression is prevalent that the improvement following splenectomy is more lasting This is to be expected if it is borne in mind that whereas transfusion merely improves the condition of the blood, splenectomy removes the most apparent noxa In connection with Dr Thayer's remarks about the long periods of spontaneous remissions, I would call attention to Cabot's series of 1,200 cases in which only three patients were considered as "cured," in other words, did not develop symptoms during five years May it not be that among the small number of splenectomized patients that we have thus far had opportunity to see, there is a group which will eventually give us a larger proportion of long surviving cases? I hesitate to use the word "cure," because we do not think of any of them as really cured In regard to the use of the term "splenic anemia," I think most physicians would agree with Dr Miller that it probably includes one or more clinical conditions of uncertain or varying etiology But just as the hemolytic jaundices, and probably also von Taksch's disease have been separated from this group with profit, so also Gaucher's splenomegaly, with its unique pathology and well-defined symptom complex, should to my mind be considered an independent condition Thus "splenic anemia" in the present state of our knowledge might profitably and feasibly either be discarded entirely, or considered as synonymous with Banti's disease, or with the two early stages of that disease

Dr Joseph L Miller, Chicago Not every patient with hemolytic icterus is inconvenienced by it In fact, the majority of these patients suffer little or no inconvenience aside from discoloration of the skin For this reason, Turck has referred to it as a cosmetic disturbance rather than a disease It would seem, therefore, a question whether an operation with a mortality of at least 10 per cent should be undertaken in these cases of hemolytic icterus, unless the person shows a definite disturbance or unless he should be willing to undertake the risk associated with the operation in order to be relieved of the icterus There has recently been a report of three cases of hemolytic icterus cured, the result of Roentgen-ray treatment In those cases in which splenectomy is not undertaken it might be well to try the effect of the Roentgen ray to see whether a cure might be effected

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Reduction of Mortality in Indian Armies—The report of the sanitary commissioner, with the government of India, gives a table showing the remarkable improvement in the health of the native army since 1880 We will here summarize the table

Year	Death Rate (Including Deaths of Absentees on Enrolled Strength)
1880	41 12 per mille
1885	16 09 per mille
1890	18 60 per mille
1895	15 71 per mille
1900	18 57 per mille
1905	9 50 per mille
1910	7 12 per mille
1911	6 78 per mille
1912	5 66 per mille
1913	4 55 per mille
1916	3 73 per mille

During the same period the death rate for British troops dropped from 24 8 to 4 3—*Indian Medical Gazette*, July, 1916

THE STATUS OF PHYSICAL THERAPEUTICS IN THE MEDICAL COLLEGE CURRICULUM OF TODAY*

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The brevity of the time assigned and devoted to the study of nonmedical therapeutic agents in the present medical college curriculum was very forcibly brought to my notice when I was asked by the faculty of a Class A school to present in sixteen hours this entire field with the exception of electrotherapeutics The results of the attempt were far from satisfactory to the students and to myself It was possible in this space of time only to make brief mention of the physiologic effects and therapeutic uses of such measures, and there was no time for demonstrations and no opportunity for the students to become familiar with the technic which is so essential to the proper application of these therapeutic agents

It occurred to me that it would be interesting to know what attention is given to these subjects in the medical schools of the United States, and the material gathered in the course of my subsequent investigation forms the basis of this paper This information is presented with the earnest desire to encourage a more systematic teaching of these subjects, so that every graduate in medicine on entering practice may be prepared to make scientific and effective use of physiologic therapeutics My information was obtained by sending to each of the medical colleges listed and classified by this Association an inquiry as to the number of hours devoted to the presentation of the subjects of hydrotherapeutics, electrotherapeutics, mechanotherapeutics, massage, medical gymnastics and dietetics Replies were received from fifty-seven schools, forty-two of which are listed in Class A, nine in Class B, and five in Class C The replies to my inquiry indicate a decided interest in the subject, and many express regret that time and suitably equipped laboratories are not available for proper presentation of the subjects

In 1908 the American Medical Association, through its Council on Medical Education, prepared an outline for a model medical curriculum Their report, which was issued in September, 1909, represented the work of a committee of 100 of the leading medical educators of the United States and Canada In their schedule of hours devoted to the different subjects of the medical curriculum, an allowance of sixteen hours in the third year was made for nonpharmacal therapeutics, and in the fourth year fifteen hours were devoted to electrodiagnosis and therapeutics There was no other definite time allotted to this class of therapeutic agents Under the head of nonpharmacal therapeutics were classed hydrotherapy, climatology, dietetics, electrotherapeutics, psychotherapy and other physical and physiologic measures The members of the committee considered this sufficient time for the theoretical discussion and demonstration of the above named subjects Some members of the committee felt that more time should be devoted to this class of therapeutics, but the limited total number of hours at their disposal determined their final recommendation

The same committee advised that 165 hours be devoted to pharmacology and toxicology It is not my intention to criticize the committee's report, but I am certain that the time allotted to nonpharmacal therapeutics is entirely insufficient to give the student a degree of proficiency in his use of these methods equal to that which he is supposed to acquire in the use of medicinal agents I have referred to this model curriculum at this time in order that comparison may be made between the standard schedule thus established and the average schedule of the investigated subjects in operation in the medical schools

In summarizing the collected information, I found that the average time devoted to the nonpharmacal subjects exclusive of psychotherapy was sixty-two hours, or about four times that recommended in the model curriculum In all but two or three of these schools special work was being given in one or more of the subjects of this group In seventeen of the schools a special course was devoted to hydrotherapy, eleven other schools gave a course in which hydrotherapy was combined with one other subject of the nonpharmacal group Dietetics was considered in a special course by twenty-two schools, the average number of hours devoted to this subject being thirty The majority of schools are giving special courses in electrotherapeutics, a few considering the subject only in connection with other courses, such as neurology That electrotherapy has a definite place in therapeutics cannot be questioned, and it is unfortunate that because of a lack of satisfactory information it is still so much in the hands of the "irregular practitioner" that many physicians hesitate to use it, fearing criticism from the profession In twenty-three schools giving a special course in this subject, an average of twenty-three hours is devoted to the subject

Very few of the schools were able to demonstrate the proper technic of the physical measures because of a lack of suitable equipment A few schools, through their hospital connections, were able to demonstrate such procedure before their students, but very few of them required such work on the part of the student individually as would be required in a practical course in pharmacology A few schools still give the greater part of this work incidentally in connection with the courses in general therapeutics or in clinical medicine

The objection to these subjects being presented in this way is that the student has not familiarized himself with the proper application of such measures, nor is he so drilled in their physiologic action as to allow him to make use of these measures with the same precision with which he would employ medicinal agents Until it is possible to teach them as laboratory subjects where the different forms of apparatus necessary to the application of such treatment is available, it will be of no practical use to the practitioner unless he takes some special work to obtain that proficiency which will enable him to determine the proper application of such remedial measures to the condition before him Where a personal opinion has been expressed by those in charge of the department of therapeutics, the opinion is quite universal that a sufficient amount of time is not at their disposal, nor have they the equipment for properly teaching the use of nonpharmacal measures It is to be hoped that the time is not far distant when medical schools will have more satisfactory means of imparting information concerning these subjects, and in my opinion this education of the profession will very largely solve the problem of the irregular practitioner who attempts to commercialize an imperfect knowledge of these subjects to the great disadvantage of the patient

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* Read before the Section on Pharmacology and Therapeutics at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June 1916

As to the lack of time and proper facilities, the dean of one of the leading schools of the country expressed himself as follows

> We do not pretend that, as far as mechanical treatment is concerned, we are as efficient as we should like to be The executive committee of the hospital has been attempting for some years to obtain endowment for a department of physical therapy, but so far we have been unsuccessful We have the matter in mind, however, and meanwhile we are continually using many of the methods of physical therapy with the somewhat incomplete apparatus which is available to us

Another answered as follows

> In reply to your recent letter would say that the status of physical therapeutics in this medical school is not at all satisfactory Indeed, from my experience I would say that this form of therapeutics is very unsatisfactory in most all medical colleges and hospitals In such work it is very difficult to differentiate between the honest, conscientious seeker for the truth, the therapeutic enthusiast who does not use critical methods of control for his work, and the unprincipled money-maker who uses such methods as a form of exploitation Although I heartily approve of all forms of physical therapeutics, it seems wise to me, in the development of them, to proceed slowly The only way to differentiate between the classes of workers above mentioned is, to my mind, the keeping of very careful records which may be critically analyzed as data by competent medical men, to have an adequate series of control cases, and to follow up the end-results of this form of work It has been the tendency in most medical schools to discontinue special departments of therapeutics, the function of which has been taken over to a considerable degree by those responsible for the teaching of pharmacology and clinical medicine and the special branches

The question has been raised by some as to the advisability of presenting the nonpharmacal subjects as individual courses, suggesting that they should be given consideration under the general head of therapeutics I quite agree that this could be done, but unless the same careful attention is given the physiologic action and proper technic of the use of these measures, as is given to the use of medicinal preparations, the instruction will have been insufficient The student must be given opportunity to obtain sufficient proficiency and information to know when such measures may be used with profit and to give definite directions as to how they should be used It is as essential that this be done as that specific directions be given in regard to the proper dosage and frequency of administration of a drug Would the physician be pardoned if he should direct the nurse on a case to administer the alkaloids or other potent drugs in any way she might think best? But this is just what is being done by many of the physicians who are attempting to make use of nonmedicinal agents Undoubtedly, many patients are not only not benefited but are in many cases injured by such therapy

The empiric use of hydrotherapeutic measures is fraught with grave danger in many organic diseases, and the same may be said with reference to the use of massage or other physical measures, but this should not condemn them as of no value It is not desired to argue as to the beneficial effects of the nonmedicinal agents in disease The fact that they have stood the test of time and are being used more and more in a scientific way is sufficient proof of their value That they have been used empirically and are today exploited by some in such a way as should be severely condemned is no more to their discredit than are the facts with reference to the "patent medicine" question. The opinion held by the profession with reference to the physiologic action and therapeutic value of the majority of the pharmacopeial drugs has been completely changed as a result of information obtained by painstaking effort on the part of laboratory workers. When equal attention is directed to the other therapeutic measures, it will be found that in many situations they can be used to much greater advantage than the medicinal agents Unless our profession is to be criticized as are those who refuse to acknowledge virtue in any line of treatment except that to which they are wedded, it will be necessary for us to give proper consideration to all valuable therapeutic measures, and in so doing we shall immeasurably increase our usefulness and have the confidence of the public to a much greater degree

The one best qualified to prescribe the diet in diseased conditions should be the physician, but when he is ignorant of the simplest principles of dietetics and advises his patient "to eat whatever he likes, as much as he likes and whenever he likes," it is only to be expected that the patients will appeal to those who profess, under whatever name, to have sufficient knowledge of the subject to prescribe intelligently in specific conditions Until within the past few years the subject of dietetics has not received attention in the medical curriculum as a specific subject, but, fortunately, conditions have now changed, and such a course is given in practically every school of the United States, and more time is devoted to it than was suggested by the committee on a model medical curriculum for the whole subject of nonpharmacal therapeutics, which comprised the subject of dietetics along with others The work being done by Allen with reference to diabetes, the late researches as to the etiology of pellagra, and the study of anaphylactic phenomena after the ingestion of certain foods, and toxic conditions due to intestinal disturbances, with other considerations equally important, show the need of thorough instruction in this subject It is not sufficient that the student hear the subject mentioned in a general way He needs specific information But we are told that the difficulty in accomplishing this is the lack of time The curriculum is already overcrowded with apparently indispensable subjects A possible solution of the matter might be found by those schools which require one or more years of college work for entrance by requiring that the premedical work shall have a specific relation to the regular medical course, and shall lessen the number of courses now crowded into the medical curriculum

The modern hospital is very careful to install the best available equipment for the application of physical therapeutics, but unfortunately little use is made of it This can in many cases be explained by the imperfect knowledge of the subject possessed by the medical staff It is hardly to be expected that satisfactory use could be made of a therapeutic agent which the physician had never seen demonstrated and the physiologic action of which he had never observed A complete pharmacy without a working knowledge of the drugs therein contained would be a comparable situation Great effort is being made to determine exactly the physiologic actions of the drugs that are listed in the pharmacopeia and that are being introduced in large number by chemical manufacturers, and certainly all due credit shou'd be given the laudable efforts in this line But of the hundreds of drugs that are at our service, how many are indispensable? The following quotation from a recent editorial[1] in The Journal of the American Medical Association relative to this subject is of interest in this connection

> Until very recently, we were compelled to acknowledge that little if any progress was being made in internal medicine so far as drug therapy was concerned Everybody knows of the progress made in other branches—in bacteriology, in pathology, in biologic chemistry, in surgery, in etiology and in the application of technical methods to diagnosis Recently, however, pharmacologic research and the application of scientific methods in the study of the physiologic action of drugs are resulting in definite, positive progress An important lesson, incidentally learned through this scientific investigation, is the fallibility of the drug therapy described in textbooks Many drugs have been, and still are, vaunted in textbooks as valuable in a variety of conditions, whereas scientific investigation and controlled clinical observation have proved them to be totally worthless, others are proving to be of value in an extremely limited number of conditions The sooner writers of textbooks realize this fact and enter into the spirit of the new era, the better for the public and for scientific medicine

When an individual has learned by experience of the fallibility of drugs, he has not infrequently lost confidence in his physician and has been led to employ as his adviser some one professing to cure physical ills without resorting to drugs The number of such individuals has become so large as to provide a considerable field for the drugless healers, and the influence of this class has been so great with our state legislatures that they have felt compelled to grant some form of recognition to these irregular practitioners Because the medical profession in the past has ignored to so great an extent all other therapeutic measures than drugs, may it not be possible that the responsibility for the prosperity of osteopathy and similar therapies rests largely on their shoulders?

There is no doubt as to the value of suggestion in a *large number of pathologic conditions,* but because the regular physician has been imperfectly educated in psychology and has used it so little in his work, he has permitted large numbers to turn to Christian Science or New Thought for the relief of all their ills And so neglect on the part of the profession to make proper use of physical therapeutic measures has made it possible for the irregular practitioner to recommend himself to the public through that measure of success which apparently attends his efforts in the application of these lines of treatment That this condition of affairs is unfortunate is very apparent The irregular practitioner, because of his imperfect education, is unable to make a careful and proper diagnosis, and this results in his attempting to use his particular method of treatment in cases where it is decidedly contraindicated and may cause needless sacrifice of human life Instances of this are common knowledge

The treatment of the chronic invalid in the future will be more and more institutional, and if successful, must depend on a system which will include the nonmedicinal form of therapeutics to a large degree The question of proper diet can no longer be left wholly in the hands of the hospital authorities The physician will be expected to prescribe this in a specific way in each case The proper application of massage cannot safely be turned over to some one bearing the brand, "trained in Sweden," but should be directed and supervised by the physician The value of passive exercises in the treatment of certain conditions is inestimable Tonic effects may be more satisfactorily obtained by hydriatic treatments than by the prolonged use of any so-called tonic agent of the pharmacopeia, and in hospital practice where proper facilities are provided, the value of hydrotherapy in a wide range of cases should be more generally appreciated Similar remarks might be made about other nonmedicinal therapeutic measures The day is past when, in medical cases, the patients will submit without protest to being confined in hospitals and treated solely by drugs Patients are coming more and more to avail themselves of massage, exercise, hydrotherapy, and to insist on having the advantage of such measures in conjunction with medicinal therapeutics and a prescribed diet

One reply, received from the dean of one of the university medical schools, was as follows

> I would state that the course in therapeutics devotes itself rather more than half the time to subjects not related to the use of drugs and the emphasis throughout is laid on attending first of all to conditions of living, nursing, dieting, securing of favorable mental attitude on the part of patients, prophylaxis, etc From time to time students make reports on such subjects as x-ray therapy Amphitheater demonstrations of certain simple hydrotherapeutic treatments, such as the typhoid bath are given, but, owing to lack of facilities most of the work in physical therapeutics is confined to discussions

And so it is with the majority of schools While recognizing the value of such measures, they find it impossible to present them properly, owing to lack of time and proper facilities This, then, seems to be one crying need in our schools While the time devoted to these subjects is far greater than suggested in the model curriculum, it is yet far from sufficient to present these subjects in such a thorough manner as to fit the student to use them in a practical way The more serious lack of properly equipped laboratories makes it impossible to present them in a scientific way, with the result that these measures are often prescribed in an empiric way, and, under the circumstances, recommend themselves neither to the physician nor to his patient

The day is past when the public is willing to be treated by medication solely Today, intelligent patients expect that their physician will be able, in addition to making a correct diagnosis, to prescribe that form of treatment that will most readily restore them to health They expect him to tell them the cause of the trouble and how they can avoid it in the future, how and what and how much they should eat, how they should bathe, and what exercises would be to their advantage A knowledge of drugs only will not permit the physician to do this Is it necessary that the patient be compelled to consult, in addition to his physician, a food expert and a gymnasium director to find out what to eat and how to exercise, or to consult an osteopath or a professional masseur to obtain the benefit from manual movements? It is high time that the physician be able to direct in all the activities having to do with the well-being of his patient, and that he so minister to all his physical needs that never again will the patient think of him as a dispenser of drugs only

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[1] The Fallibility of Drug Therapy in Textbooks editorial The Journal A M A May 27 1916 p 1708

ABSTRACT OF DISCUSSION

Dr Thomas F Reilly, New York Physical therapeutics is the one branch of medicine wherein those who become interested are exceedingly prone to run to extreme statements as to its therapeutic possibilities No one denies that physical therapy has a place in the alleviation of symptoms and indirectly in the cure of disease, but it is by no means the panacea that its apostles would have us believe Unless the curriculums of our medical schools are freed from some of the work necessary to successfully pass state board examinations, it is not possible to give more than a fraction of the time advocated in this paper to a study of these measures Like the reader of the paper, each specialist cries out that the medical school does not go thoroughly enough into his particular specialty After all, the medical school can furnish little more than the principles of medicine in the time allotted to study—the alphabet of the science, as it were The words and sentences must be filled out in hospital practice The application of the use of the physical measures as recommended are time consuming, and from an economic standpoint are not practical in everyday practice by the general practitioner himself, but must be done by nonprofessionals, just as the pharmacist must take up most of our preparations Of course, the basic principles of such therapy must be taught This applies with special emphasis to Roentgen-ray diagnosis and therapy, a specialty which must soon find a relatively large place in every curriculum

Dr N P Barnes, Washington, D C This condition might be ameliorated after the student has spent so much time in the laboratory by a little work in a gymnasium which should be connected with each college I recommend to my students, especially those in the second year, finishing their anatomy, to go to a gymnasium to work out and study their muscles Nearly every city supports one or more gymnasiums, which are always accessible to the properly minded medical student I had a young man in my office who was very well developed on the right side, but not on the left, because he was a tennis player I prescribed that he put his right arm in a sling and play with the left arm, and in the course of time he got some development on that side We all prescribe massage and how many of us know anything about it? The student in the future should be able to direct this massage, and I feel that when I tell patients that they need massage that I like to supervise it because we get different results from different manipulations

Dr Walter E Simmonds, Chicago For the last two years I have been engaged in teaching this work I have only sixteen hours for all the practical instruction in hydrotherapy, electrotherapy, phototherapy and mechanotherapy A lecture course is given by the head of the department He has worked for years to secure some kind of equipment for a laboratory in which to give this instruction, but was unable to secure an adequate appropriation for this purpose, all that could be obtained was $75, and, of course, we could not procure a very complete equipment with this amount I maintain that the same time should be given to laboratory instruction in physical therapeutics as is given to pharmacology Our students have a two-hour period in pharmacology to one in nonpharmacal therapeutics Dr Reilly mentioned the difficulty of obtaining men trained in this branch I see no reason for this If you want a man in your hospital for Roentgen-ray work you send him to get this special training Why should you not send a promising young physician for training in physical therapeutics? The superintendent of a large Chicago hospital told me that the reason their department for physical therapy was not more used was that the physicians who attended the hospital did not prescribe this form of therapeusis Having obtained a man trained in this branch, and such men can be obtained if the salary is paid, an adequate department should be furnished him, do not handicap by less equipment than a second-rate bathhouse would have Give him an equipment that would enable him to do the same kind of scientific work as is done in other branches of medicine Men working along one particular line become enthusiasts, but with the close cooperation of those engaged in clinical work, as well as those teaching the fundamental sciences, you will find that he will do as good scientific work as in any other department I protest against placing the nonpharmacal equipment in the basement or other least desirable part of the college or hospital

Dr B Fantus, Chicago This paper brings out the important fact that we are properly teaching only one half of the therapeutics we should teach in our medical schools When the practice of a hospital or of a successful physician is examined, it will be found that medicinal therapeutics constitutes only one half or less of treatment, and that the other half is made up of physical, psychic and dietetic measures, and this in spite of the fact that most of us never had adequate instruction in the measures I believe the time has come and is here now, when it must be recognized that the doctor who knows nothing but drugs is as reprehensible as he who solely practices massage, electrotherapy, hydrotherapy, etc I take issue with the idea brought out in the discussion that some of these measures are properly measures for specialists They will never come to their own until every physician is competent to practice them Take massage, for instance Every doctor frequently meets cases that need massage, and, if he does not know how to apply it and in certain cases to teach the manipulations to the patient, the latter will generally not obtain the benefit of these manipulations at the time when they might do the most good. There are million of joints in the United States that have become crippled because of the lack of massage at the time when it was needed Medical gymnastics should be taught in the medical schools by giving the student the physical exercise he needs in the form of instruction in specialized gymnastics, such as programs for patients with heart disease, constipation, scoliosis, etc Electrotherapy, as well as hydrotherapy, should be in the hands of every medical practitioner to accomplish the most good for the people Our ignorance of dietetics is the laughing stock of the world It is high time to remove this stigma from the medical profession

In all probability nothing will be done Years will pass before a change will come, because the leaders of the medical profession are not conversant with these measures of treatment If they know little or nothing about these measures, how can they be expected to provide adequately for them? The very provision they have made for them in the standard curriculum—sixteen hours—shows how little they know about these various measures It is not desirable to wait for a fifth year to be added to the curriculum before these subjects be taught adequately If necessary, the time given to anatomy might be cut down somewhat to give the students a better training in these subjects

Dr E L Eggleston, Battle Creek, Mich I trust you will not consider that I am bringing this subject before you in a critical way It may be that the leaders in medical education have done the best they knew how to remedy the situation; nevertheless, I feel that it is high time there was a change. I am in institutional work, and too many of the patients coming to me have for their medical advisers irregular practitioners One of the reasons for this is the slight attention given to physical therapeutics, and I trust the day will soon come when there will be more attention given to this particular work I appreciate the criticism which has been directed toward those using these measures empirically Their value depends on their being used with the same degree of precision found necessary for the advantageous employment of the medicinal therapeutic agents

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Transmission of Disease by Insects—Centuries ago there was suggested the possibility that insects were concerned with the spread of disease, and from time to time there have appeared keen suggestions and logical hypotheses along this line that lead us to marvel that the establishment of the truths should have been so long delayed One of the earliest of these references is by the Italian physician, Mercurialis, who lived from 1530 to 1607, during a period when Europe was being ravaged by the dread "black death," or plague Concerning its transmission he wrote "There can be no doubt that flies feed on the internal secretions of the diseased and dying, then, flying away, they deposit their excretions on the food in neighboring dwellings, and persons who eat of it are thus infected"—Riley and Johannsen, Handbook of Medical Entomology

REPORT OF TWO CASES OF SCOLIOSIS

ACCOMPANIED BY PRESSURE PARALYSIS OF THE LOWER LIMBS *

JOHN RIDLON, M D
CHICAGO

The purpose of this paper is simply to report two cases presenting a condition which, in so far as I know, is unique, namely, a motor spastic paralysis of the lower limbs associated with and apparently depending on scoliosis

The paralysis in both cases appeared to be in every respect the same as the paralysis we not infrequently see in cases of tuberculous spondylitis, and which we believe to be due to pressure on the anterior surface of the cord from the inflammatory process involving the vertebral bodies

One of these patients was examined by two eminent neurologists Their reports will presently appear in this paper Both of these patients were treated on the convex gas-pipe frame One was carefully nursed and the paralysis passed off by the end of four months, the other, less well nursed, had gained voluntary control of the movements of the limbs at the end of six months, but the tendon reflexes continued exaggerated

Case 1 — Girl, aged 11, was seen by me in June, 1913 She was large and well developed The spinal curvature had been noticed for some time There were marked round shoulders, a well marked lumbar curvature to the right with considerable rotation for the degree of lateral deviation, and a slight dorsal curvature to the left which on forward bending showed a marked rotation deformity Roentgenograms showed a somewhat irregular fifth lumbar vertebra, with a slight lateral curve to the right starting from the deformed vertebra In the dorsal region there was a short, sharp curve to the left with extreme wedging of the bones, one of which, the ninth, has an extra rib attached to the thicker side

The patient was treated by daily exercises, and for nearly a year wore a leather corset made over a corrected plaster torso The girl as a whole looked much straighter at the end of that time On account of the extreme heat of the summer the corset was left off, but the exercises were continued At the end of another eight months, the corset not having been resumed the girl had grown rapidly and had become very stout She looked straighter, but the roentgenogram showed that the curvature had really increased

In July 1915, two years after the first observation, it was reported that she had been walking 'queerly" for about two weeks and had fallen at least twice For a month or more she had been uncertain" in her bowel movements, but had had no bladder symptoms

On examination her walk showed spasticity, more noticeable in the right than in the left leg, the patellar and Achilles reflexes were exaggerated, and ankle clonus and the Babinski sign were present

The Roentgen-ray plates read by Dr Hollis Potter showed 'no material change (from former plates) in the anterior posterior view Transverse view showed wedging in front, but less than to the right side"

Dr Archibald Church examined the patient and kindly provides the following report

'About six months ago her mother noticed that she was getting a little clumsy on her feet About two months ago she commenced to have difficulty in the action of the bowels with a slight sphincter relaxation She would often feel an inclination to go to stool but experienced inability in defecation, and then perhaps in a few minutes or hours involuntary defecation would take place

"She complained of no disturbance of sensation, though stating to her mother that her legs, especially the right leg, felt heavy and stiff More recently she had encountered difficulty in mounting stairs and had fallen once or twice, and walks in an uncertain, rigid manner

'Upon examination the patient presents a very well developed appearance for a girl of her age Menstruation has been established and is regular Her general appearance is one of robust health

'The face is not symmetrical The left eye is apparently larger than the right The left side of the face is decidedly larger than the right, and she has a way of talking almost entirely on the right side of her mouth But innervation is symmetrical on both sides of the face There is no evidence of cranial nerve palsy of any kind Upon extreme deviation of eyes to right or left, very slight nystagmoid movements may be induced Eye grounds normal

"The upper extremities show no variation of innervation either for motion, sensation, or the reflexes

'The abdominal reflexes are elicited with difficulty, owing perhaps to the adipose deposit The left umbilical reflex is very slight, the right cannot be elicited

"The lower extremities present very greatly exaggerated knee jerks and rectus clonus can be demonstrated on the left side There is distinct ankle clonus also on the left side, somewhat slighter on the right side Babinski reflex is present on both sides The toes stand in a retracted hammer position, similar to the foot of Friedreich's ataxia

'There are no vesical symptoms, although she is not quite sure about holding her urine as well as formerly

'Sensation objectively tested seems to be normal in all its modes and tenses throughout the body and extremities

'Thoracic, abdominal and pelvic organs normal Blood and urine normal

Opinion In my opinion there is pressure on the cord in the region of the sharp dorsal bend, showing itself in the spastic condition of the legs and the motor weakness and reduced voluntary control of the lower abdominal action, sphincter control, and locomotion

"The condition is apparently congenital, but owing to the increasing weight of the body and the demands of growth, has probably induced cord symptoms during recent years"

The child was placed on a convex gas-pipe stretching frame and cared for continuously by a trained nurse At the end of four months the reflexes appeared to me to have returned to the normal, and the spine was decidedly straighter The treatment was continued after a consultation with Drs J D Griffith Francisco, Skoog and J N Jackson

March 23, 1916, Dr A L Skoog, who had seen and examined the patient very frequently, reported as follows

"In the history I wish to call particular attention to the observation of both parents that has always had an 'unusually peculiar gait' My neurological examinations have been made every one to three weeks, the first being made on July 19, 1915

'The mental state has always been perfectly normal Her even, placid, uncomplaining and obedient disposition has been striking The eyelids tightly closed show some tremor The tongue was protruded mesially but had much incoordinate tremor There were some nystagmoid movements when the eyeballs were turned to the extreme right or left No other cranial nerve disturbances Some tremor was seen in the outstretched fingers Gait was greatly impaired, caused chiefly by disturbed coordination, left more than right There was much spasticity at the ankles, less at the knees, and still less at the hips The foot deformity was marked having a moderate resemblance of the Friedreich's type, left greater than right The various leg movements were decidedly ataxic A mild dysdiadokokinesia was found, left slightly more than right All deep reflexes were plus and much more so in the lower extremities Prepatellar reflexes were pronounced There was a tendency to right clonus, and a more marked unsustained one on the left These clonic tendencies disappeared after three or four taps There was a definite right positive Babinski and a more marked one on the left A glossy or trophic skin was present in the lower extremities No sensory disturbances could be elicited

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

"Subsequent examinations have shown a slow but quite uniformly continuous improvement At this time the reflexes are less pronounced The spastic state is much improved There is less ataxia in the lower extremities The positive Babinski has changed to a negative one The Friedreich's foot and nystagmoid movements continue

"Conclusions In my opinion the patient is suffering from some congenital or early developmental defect, involving especially some of the lower coordinating tracts There has resulted a secondary cord compression from the dorsal vertebral deformity"

Case 2—Girl, aged 16, was first seen by me in October, 1914 Her father is a clergyman, and both he and the mother have had "nervous collapses" There is one younger child who is normal The patient at birth had a spina bifida in the upper dorsal region When about 9 weeks old she had, by Dr Jepson of Sioux City, three iodin injections ten days apart into the tumor mass She walked at 3 years She was never a rugged child When about 7 years old her mother noticed that the left shoulder was higher than the right She was bright and quick in school When about 14 years old her health began to fail, and she left school at the end of that year The digestion was bad, she was fed on beef tea and malted milk, she lost weight and strength, but the loss of strength was mainly in the legs During her fifteenth year Dr Chase made Roentgen-ray pictures at the Battle Creek Sanitarium, and reported

"There was a destruction of the bodies of several of the dorsal vertebrae, which I estimate to be the fourth to the seventh, inclusive, the destruction being the most marked between the fifth and sixth There was a marked curvature of the spine to the left as well as anteroposteriorly I was unable to demonstrate a perispinal exudate, such as is often seen in true Pott's disease" A "poroplastic cast" was applied and weight and pulley traction The general health improved after two months She was losing all motor power in her lower limbs, and after some three months was sent home The limbs became utterly paralyzed After another three months there was a slight return of motion in the right foot, after a while motion appeared in the other foot By the following March (1914) she was able to sway the feet from side to side at will and flex the knees By July she could move her feet in bed as she wished, but the limbs had not lost their rigid tension

I first saw this patient the following October (1914) There remained from the spina bifida a mass the size of a small and shriveled peach at about the third dorsal vertebra There was an extreme curvature of the upper two thirds of the dorsal spine to the left with an extreme degree of rotation deformity and the rib deformity characteristic of scoliosis She sat in a wheel-chair, she could move her limbs at will, and stand and walk a few steps with help The patellar and Achilles reflexes were greatly exaggerated

Returning home after a few days, a distance of about 200 miles, she again lost the use of her limbs She was put on a convex gas-pipe frame with instructions to remain there constantly To illustrate the care she had, I will relate what I found when making an unexpected visit in January of this year She was a block from home at the house of a neighbor, on her back on a soft couch The wheel-chair and stretching-frame were in front of the house She was wearing a large padded diaper into which she passed both urine and feces, for a "convenience," her mother said, but the girl said that she knew when she did it, and that she could control both her functions She has had a daily "internal bath" since she was at the Battle Creek Sanitarium in 1913 Examination showed ankle clonus absent on the right side, and but slightly exhibited on the left side, the patellar reflexes were still greatly exaggerated, but she could move her feet and legs at will In a word, there had been some considerable improvement, but she was far from recovered from her spastic condition

I will not offer any theories as to these cases The condition is new to me

7 West Madison Street

ABSTRACT OF DISCUSSION

Dr Leonard W Ely, San Francisco I had a case, similar to the one Dr Ridlon described, with *spastic paralysis* The patient would not submit to jacket treatment and the paralysis was slowly increasing when he was last seen

Dr J D Griffith, Kansas City, Mo I would say to Dr Ridlon that the case is still under treatment We are pursuing it right along The patient was a very fleshy woman, and very large She weighed 165 to 170 pounds at the time of submitting to treatment There was a positive von Pirquet, although this does not mean anything necessarily, I suppose It is, however, corroborative How much the therapy had to do with the restoration of the spastic condition it is impossible to tell She is taking potassium iodid The waist line was reduced 8 inches during the time she was on the frame, but that may have been due simply to the use of "Kissingen" salts, three times a day, in large doses I reduced the protein and to a great extent, the sugar I could not cut out all the candy The other treatment amounted to from 10 to 25 grains of potassium iodid three times a day She has lost the spasticity and walks naturally in a corset with steel stays in it, keeping up continuous hyperextension At night, she takes off the corset and goes on the frame, and in the morning she puts on the corset while still lying down

Dr Reginald H Sayre, New York I should like to report a couple of cases—one referred to me by Dr Spitzka, twenty odd years ago—that presented almost identical symptoms with this I believed it was multiple sclerosis in a child that had lateral curvature, and on careful investigation, it was found that clumsiness in movements of the upper extremity had distinctly antedated the noticing of the lateral curvature in the spine by the mother Later on, another similar case came under my observation, and five or six years ago, I reported a couple of cases, which I attributed to pressure on the cord by the lateral curvature In these, however, the history obtained from the parents showed the presence of the incoordinate movements before the spine lesion was noted, and it is hard, I think, to see why a dorsal curvature would give incoordination in the upper extremities, the tremulous tongue and the symptoms mentioned, unless one is expecting a lesion of the upper cord as a consequence of the pressure at the point of twisting

THE HEART AND ACTIVE SERVICE

TREATMENT OF CONVALESCENT SOLDIERS AT HEATON PARK *

H J SEEUWEN, M D
Membre fondateur de la societe belge de radiologie et d'electricite medicale et de la Societe belge de physiotherapie
MANCHESTER, ENGLAND

In January last, at a meeting of the Royal Society of Medicine, Sir James MacKenzie opened a discussion on the "Soldier's Heart" His paper was interesting, as was the discussion which followed A few weeks afterward, Dr R N Wilson, his assistant, paid a visit to our command depot at Heaton Park He examined a great number of our men affected by heart troubles

After his visit, Major R Tait McKenzie arranged for me to give electrical treatment to a selected group of those men I took some sixty of the most serious cases of heart troubles All of these men were at the same time given daily open air exercises by Major McKenzie's method, which included gymnastic training and route marches

The physical training includes two divisions, the light and the full training The first consists of slow movements of limbs and trunk, and some deep breathing exercises, in the second division we find all the movements much more vigorous, much quicker, and also running and jumping For the route marches we have the light one, which is only a walk at an easy pace for about 2 miles, the full route march is a sharp walk, in quick time, for from half an hour to an hour, usually with a band of music

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* This paper was forwarded by Dr R Tait McKenzie (of Philadelphia), who is now a major in the *R A M C* *He says* that 'Dr Seeuwen was a prominent *practitioner in* Ostend and with his family has been living in *Manchester until* I was fortunate enough to secure him for my staff here"

I made a daily application with the faradic current, the only form of medical electricity for the time being at our disposition

The history of most of these men corresponds closely with those related in the articles of MacKenzie, Wilson and others Wounds (20 per cent were wounded), shell shock, excessive work exhaustion and nervous strain are common factors Debility following infection by sore throats, measles, dysentery, typhoid and malaria were found in about 25 per cent

When I carefully scrutinized all those young men's pathologic history I could in more than 50 per cent trace some old standing lesions, or some weakness, or at least a want of energy of the heart Some of them had suffered years before they enlisted from palpitation, or breathlessness, after any strong effort, such as a run, or emotional disturbance Others had been suffering from attacks of rheumatism (with or without heart troubles), others had hyperthyroidism, and others had suffered habitually, in winter, from cold hands and feet or other vasomotor disturbances I asked all those men if they could play football or other exhausting games before they enlisted Only five or six out of the sixty men were athletes

Another very important factor is the probability of infections by bad teeth Out of those sixty men, only eight presented a healthy denture Is this not one way in which we must expect to find a very frequent cause not only of "soldier's heart," but also of rheumatism, or what is commonly called rheumatism, of dysentery, typhoid, goiter, and many other infections which find a well prepared soil in bodies which have had digestive troubles through defective teeth? In those cases the alimentary tract is the first affected, but afterward the central nervous system suffers, and all kinds of nervous symptoms may well be produced

Dr Wilson called my attention to the great number of big necks presented by the men he examined The thyroid gland is often hypertrophied (25 per cent presented a big neck) Is it due to infection and autointoxication? In a great number of cases, I think it is During some ten months, with Dr A E Barclay in the Roentgen-ray department at the Manchester Royal Infirmary, I saw a great number of simple and exophthalmic goiters, and we found very few of those patients — nearly all women — with a healthy denture

What about spirits and tobacco, of which Dr Poynton spoke? I think in a few cases they may be adjuncts, especially tobacco used in cigarets when smoke is inhaled Some of these boys are smoking and drinking more than they did before they were soldiers Nevertheless only five out of the sixty men were smoking over an average of ten cigarets a day, and most of them smoked only half that quantity

Here are the results obtained after two months of the above mentioned treatment

All the men were put as soon as possible on daily light physical training and the light route march Most of them could stand completely or partially both those exercises, whose duration was half an hour each

Case 1—Private J—— had dysentery in Gallipoli He was invalided, October 15, was in hospital for three and one-half months, and came in camp at the end of February He was short winded, had palpitations—no valvular disease of the heart—pain over heart region, bad teeth, indigestion, pulse rate about 100 March 3, 1916, faradic treatment and light physical training were begun The pulse rate was 92 March 24, he often had palpitation after physical training April 5, the pulse rate was 80 April 13, the pulse rate was 76, the patient was still on light physical training The general condition was good He had had no palpitation for three weeks April 25, the pulse rate was 76, it was decided to begin full physical training

After four or six weeks when the man did not complain, and the heart trouble did not get worse, he was promoted to the full physical training and the full route march, whose duration is about the same as the light ones, except that the exercises are more severe and the march longer and faster

All those men were examined very often during the exercises and also some hours afterward

Ten per cent of the patients could not stand the light exercises at all at first

Case 2—Private H—— was in France for eight months and was invalided July 1915, with palpitation, tachycardia and headache pulse rate 120 He had now and then palpitation before enlisting and during training After a shell burst, he got worse and worse Electrical treatment without physical training was begun March 2, 1916 pulse 110 March 10 the pulse was 84 March 15 the pulse was 78 March 17, light physical exercises were begun March 24 the pulse was 88 April 12, the pulse was 100 The patient was uneasy, had palpitation, could not stand the exercises and was excused all duties April 26 the pulse was 90, but the patient felt better He will be recommended for discharge

Fifty per cent could stand the light exercises but not the full The other 40 per cent, by daily treatment, improved more or less quickly and could soon stand the full course of gymnastics and marching

Those men who could not stand the exercise complained of excessive fatigue, of palpitations, of pain over the left chest, of breathlessness, and most of them presented a high pulse rate, often 30 or 40 more beats persisting one or more days afterward

Some men who could stand the light exercises without any trouble were submitted again and again to the full exercises and each time the different symptoms came back

Case 3—Private G——, aged 23, had an enlarged thyroid for years, bad teeth chronic throat catarrh and tachycardia (140 pulsations) He was at Gallipoli The hot climate and very hard digging day and night made him weak After a severe bomb attack he fell unconscious for an hour and felt the first palpitation Feb 9 1916, he began his treatment, light exercises and faradization After three weeks he felt much better there was no palpitation, and the pulse rate was 90 March 2, he had full physical exercises, and March 6 his pulse rate was 120 March 9 it was still 115, and the man complained of uneasiness and some palpitation March 10 he was again on light exercises March 17 the pulse rate was 88 March 23, the pulse rate was 72 April 1, we tried him again on full physical training April 7, the pulse was over 100, and again there was uneasiness April 18 he was recommended for a medical board, and was passed for home service for which he is quite well fitted

Case 4—Lance Corporal W——, invalided May 15, 1915, was in hospital four months with crushed head He was in France for three months and invalided for heart trouble Before he enlisted he had a big neck but no heart or chest troubles He felt the first palpitations after two shell shocks, and was unconscious for a few hours There were stammering and tremor He had good teeth There was no constipation The pulse rate was 68 February 23, electrical treatment and light physical training were begun March 13, still on light training, the patient was improved, speech was much better and there was no palpitation March 16, full physical training was begun March 22, the pulse was still normal, but the patient complained of dizziness, headaches and palpitations March 30, the pulse was 80 There was uneasiness April 19, the pulse was 82 There was pain over the heart region after physical training or a full route march April 26, the patient was on light physical training and light route marching, he felt better, and the pulse rate was 72 The man is to be recommended for home service

The electrical treatment consisted of a daily faradization with a light current — of long wired coil — over the thyroid gland and the heart This treatment is often used on the continent for exophthalmic goiter It consists in an application with two tampons for three or four minutes on the thyroid, followed by three or four minutes with one tampon over the heart region, the other in the neck This kind of current has a marked sedative action, but is only local The static current may do as well and probably better The static current is a first class tonic on the general nervous system, and local applications over the heart region may also be given through the static effluve or breeze

Deep applications of the Roentgen rays on the thyroid gland may also be very useful, especially on those men with hypertrophied thyroids (25 per cent out of the total) Dr Florence Stoney has described this treatment, and obtains good results Roentgen rays are certainly one of the best treatments we have now for exophthalmic goiter Tachycardia, excessive sweating, and nervous uneasiness are the symptoms which are the most quickly and completely removed

As the result of an average of two months' treatment, out of the sixty men, fourteen were quite fit and have returned to their unit, four others are fit and will return in a few days, others are on full physical training and will be fit in a short time, over a third, or 35 per cent, will be able to return to the firing line From 10 to 15 per cent have to be discharged, the other 50 per cent of the men have improved and may be able to do home service

These first results are very encouraging, and in the summer months I think we can do better Outdoor life is easier, gardening, open air games, like bowling, quoits, rowing and swimming, may hasten the cure, while treatment with the Roentgen ray, static electricity, and also hydrotherapy will greatly augment our percentage of recoveries

Heaton Park

Microscopic Differentiation of the Meningococcus—Gaudin called attention in 1914 to the presence in meningococcus colonies of short black lines represented by fine crystals They may be grouped like a picket fence or in the shape of stars, or may lie separate These crystals were found constantly in the true meningococcus cultures in the experience of Gaudin and Papin at the bacteriologic Institute at Angers, France They found meningococci in 152 of the 735 suspected specimens sent in for examination, and this characteristic *piquete* was unmistakable in all the cultures which other tests demonstrated to be meningococci, and none were ever seen in the other cultures, although all the Petri dishes were examined very carefully for them The crystals were found in twenty-five or forty-eight hours, in a very few cases they were not evident until the third day They may increase in size and number with time The culture medium generally used was gelose-ascites or gelose-white of egg, but the crystals were found, whatever the medium, except in fluid mediums Their report was published in the *Bulletins et memoires de la Societe médicale des hôpitaux de Paris*, 1916, xl, 1023 They say that the crystals can be seen with a comparatively low power microscope

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TRICHINOSIS

A STUDY OF FIFTEEN CASES *

W T CUMMINS, M D
AND
G R CARSON, M D
SAN FRANCISCO

Clinical and pathologic observations during the past several years furnish convincing evidence that trichinosis is a common disease The number of epidemics and the number of reported and unreported single cases, as well as the number of individuals associated or unassociated with epidemics presenting somewhat obscure abdominal, general muscular and facial symptoms (without blood or muscle examination) attest to this statement The percentage of trichina findings in those dead of various disorders is surprisingly high, and in several series of unselected necropsy cases the percentage has varied from 0 5 to 5 4, the latter figure having been reported by Williams[1] in this country

The life history of the parasite in the rat, hog and human being, including the effect of gastric secretions, the habits of the parasites in the intestines, and their blood dissemination and muscle deposition, has been exhaustively studied since the discovery of the importance of its human habitat in 1860 The experimental study in the smaller laboratory animals has not been neglected Examinations of the blood, spinal fluid, feces and urine from the parasitic, bacterial and chemical standpoints have revealed much of interest in demonstrating extensive tissue invasion and a well marked metabolic disorder, incidental wholly or in part to the presence of an alien protein of catabolic origin, or suggestively, as shown in experimental animals, to secondary invasion of the system by bacteria

The incubation period shows a wide variation Accurate data often are difficult to obtain, and one cannot be certain of the time of infection A large series of cases has been collected by Kratz, who found the incubation period in ninety-eight cases to be from one to five days, in seventy-six cases from six to ten days, in sixty-seven cases from eleven to twenty days, and in thirty-three cases from twenty-one to thirty-three days — the longest forty-two days Herrick and Janeway,[2] in 1909, demonstrated the parasites in the circulating blood Since that time several investigators have made similar demonstrations Frothingham[3] has reported from the Boston City Hospital a case in which the parasites were found in the brain, liver, myocardium, mesenteric node, lung and pancreas Van Cott and Lintz[4] were the first to demonstrate the parasite in the cerebrospinal fluid Other demonstrations have been made by Bloch[5] (two), Elliott,[6] Young, Lintz[7] (three), and Cummins and Carson[8] The small percentage of positive findings in the feces leads one to believe that in most cases the parasites suffer disintegrative changes in their passage through the intestinal tract Schleip noted splenic enlargement in thirty-eight of forty-six cases, but recent American reports do not show nearly so high a percentage Flury and Groll[9] have shown experimentally that the urine presents evidences of disordered muscle metabolism with an early retention of nitrogenous products, followed by an abnormal excretion of ammonia, creatin, indican, lactic acid, fatty acids and purin bases A positive diazo reaction is common They ascribe the symptoms to two toxins, one which is elaborated by the parasite itself and the other which is produced by muscle disintegration, both acting on the muscular, nervous and vascular systems Experimental observations would seem to suggest that bacterial invasion is responsible for fever and other evidences of disordered metabolism, but human trichinosis does not bear this out A very few cases have shown on blood cultures an undoubted double infection, but a preponderance of negative results furnishes strong proof that the bacteremic theory cannot generally obtain It is much more likely, according to Herrick,[10] that the fever is produced by an alien protein of parasitic and muscular origin He has presented an excellent review of recent studies in trichinosis One hundred and two case histories were reviewed by Minot and Rackemann[11] to determine the frequency of associated respiratory signs and symptoms About one third showed abnormal physical signs in the lungs The confusion of trichinosis with muscular rheumatism and typhoid fever is real

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* From the Southern Pacific General Hospital Harriman Laboratory

* Presented before the San Francisco County Medical Society May 9, 1916

[1] Williams Jour Med Research, 1901, vi, 64

[2] Herrick, W W, and Janeway, T C Demonstration of the Trichinella Spiralis in the Circulating Blood in Man, Arch Int Med, April, 1909 p 203

[3] Frothingham, Channing Jour Med Research, 1906, xv, 483

[4] Van Cott, J M and Lintz, William Trichinosis, The Journal A M A, Feb 28, 1914, p 680

[5] Bloch, Leon Trichinosis The Journal A M A, Dec 18 1915, p 2140 Illinois Med Jour, May, 1916

[6] Elliott, A R Trichinosis, The Journal A M A, Feb 12 1916, p 504

[7] Lintz, William Trichinosis and the Cerebrospinal Fluid, The Journal A M A June 10 1916, p 1856

[8] Cummins, W T, and Carson, G R A Case of Trichinosis with Embryo in the Spinal Fluid, The Journal A M A, June 10 1916 p 1856

SUMMARY OF CASES

Case	Period of Incubation Days	Orbital Edema	Eruption	Bronchitis	Muscular Soreness	Temperature Maximum	White Blood Cells Maximum	Eosinophilia Maximum %	Trichina* in					Urine Albumin
									Muscle	Feces	Blood	Spinal Fluid	Urine	
1	26	—	—	—	Slight	104	13,000	20	0	— (3)	— (3)	0	0	0
2	20	+	—	+	Extreme	104 8	19 700	70	+ (4)	— (2)	— (2)	— (5)	— (5)	—
3	17	+	—	—	Moderate	103	14 600	46	+ (4)	— (3)	— (3)	— (5)	— (5)	—
4	20	+	+	—	Moderate	102 4	23 500	24	+ (6)	— (2)	— (2)	— (5)	— (5)	—
5†	21	—	+	+	Extreme	105	28,800	61	+ (5)	— (2)	— (2)	0	0	+
6	19	+	—	—	Moderate	103 4	17 800	28	0	— (3)	— (3)	0	0	+++
7	20	+	—	—	Marked	104 4	21 600	46	+ (4)	— (1)	— (2)	— (2)	— (2)	Trace
8	20	—	—	—	Moderate	104.2	26,800	75	+ (4)	— (1)	— (1)	— (4)	— (5)	Trace
9	17	+	+	—	Marked	104	25 000	33	+ (4)	— (2)	— (2)	— (4)	— (4)	—
10	16	—	+	—	Moderate	103 8	12 500	33	— (6)‡	— (2)	— (2)	— (4)	— (4)	Trace
11	18	+	—	—	Moderate	104	13 400	53	+ (4)	— (2)	— (2)	+ (5)	— (5)	Trace
12	22	+	—	—	Slight	100 4	19 300	52	0	— (2)	— (2)	— (2)	— (2)	Trace
13	5?	+	—	—	Moderate	100 6	17 000	45	0	— (1)	— (1)	— (1)	— (1)	Trace
14	?	—	—	+	Moderate	104	16 100	28	0	— (2)	— (2)	— (2)	— (2)	+
15	?	+	—	—	Moderate	102	18 200	51	0	— (2)	— (2)	— (2)	0	Trace

* Figures in parenthesis indicate the week of the disease in which examinations were made
† Fatal case ‡ Interstitial myositis

PERSONAL OBSERVATIONS

Our fifteen cases, all of which were in laborers on the railroad, were admitted to the hospital within a period of two months In most of our cases considerable difficulty was noted in eliciting information concerning pork The first outbreak consisted of six cases (Cases 1-6) in members of an Italian section gang, all of whom, January 10, had eaten the same pork, which was admitted by the foreman to have looked diseased One of these cases was fatal The second outbreak consisted of five Greek section hands (Cases 7-11), all of whom, January 22, had eaten pork from animals killed by a train Three Italian cases (Cases 12-14) were from the same gang but no data could be obtained in regard to a common infection The last patient, an Italian, denied having eaten pork "for a long time"

Of the twelve cases with definite data, the average of the incubation periods was twenty and one half days The temperature, total leukocytes and eosinophilia generally bore no relationship to the intensity of the affection as indexed by the degree of prostration, the degree and extent of muscular pains and duration of illness The fatal case (Case 5) showed the highest temperature (105) and simultaneously the highest leukocytosis (28,800) late in the disease when thoracic symptoms were evident The maximum leukocytosis and eosinophilia were about equally divided between the febrile period and that of convalescence Two patients (Cases 2 and 14), in addition to the one who died, had for several days sanguineous sputum in which no parasites could be found One sputum in Case 14 was loaded with eosinophils, when the blood eosinophilia was low, and when the bronchitis disappeared, the percentage increased about 10 This patient also showed subconjunctival hemorrhage in both eyes The cough did not seem to be sufficiently severe to produce this condition Splenic enlargement was not noted in any case Blood cultures (extract broth) were made in seven cases during the period of highest temperatures, and all were negative Case 11, in which the trichina embryo was found in the spinal fluid,[8] gave negative cellular and globulin findings Case 10 gave a doubtful globulin reaction, and Case 2 showed 11 cells per cubic millimeter The remaining nine cases showed negative spinal fluid The urines in eleven cases were examined for parasites after the possibility of invasion of this tract, as well as the cerebrospinal axis, had been considered All were negative (Lintz[7] has found that the embryos are unaffected by normal urine)

Patient 5 ate pork, January 10 The usual abdominal symptoms were complained of, January 31, and three days later he was admitted to the hospital Physical examination was negative except for slight abdominal tenderness The temperature was 99 4, leukocytes 10,000, eosinophils 2 per cent Albumin was present in the urine, but there were no casts Moderate tenderness of the calves and flexor muscles of the arms developed, and the case progressed favorably for nineteen days, when the morning temperature reached normal That evening cough with blood-tinged sputum appeared There was slightly increased tactile fremitus over the left base posteriorly, and roughened breath sounds all over the thorax, but no rales Blood disappeared from the sputum on the following day, to reappear and continue for several days, but the cough persisted and dyspnea progressively increased The sputum showed a preponderance of pneumococci in four examinations No parasites were found Profuse sweats and extreme dyspnea were among the terminal symptoms On the development of the thoracic symptoms the eosinophilia percentage progressively decreased from a maximum of 61 per cent to 0, eight hours before death (a period of eleven days) Muscular soreness was well marked and generalized throughout the entire course of the disease, except for the last few days Symptomatic therapy was carried out, including calomel, castor oil and salol

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[9] Flury Trichinosis Deutsch med Wchnschr 1913 xxxix 1388 Beitrage zur Chemie und Toxikologie der Trichinen Arch f exper Path u Pharmakol 1913 lxxiii 164 Flury and Groll Stoffwechsel untersuchungen an Trichinosen Tieren Arch f exper Path u Pharmakol 1913, lxxxiii, 214

[10] Herrick W W Review of Recent Studies in Trichiniasis, The Journal A M A, Nov 27, 1915 p 1870

[11] Minot and Rackemann Am Jour Med Sc, 1915 cl 571

Necropsy revealed an emaciated body The anterior abdominal muscles were apparently normal The peritoneum was congested and dry The spleen was somewhat smaller than normal, and of soft consistency The liver was enlarged and flabby, of typical nutmeg appearance, and the cut surface was yellowish The gallbladder, stomach and intestines, including the appendix, were apparently normal There was moderate congestion of the pancreas Both kidneys were of normal size and of moderately increased cortical thickness The right kidney was much congested, and near the inferior pole a triangularly shaped, yellowish, soft area was seen The abdominal surface of the diaphragm showed several hemorrhagic areas The left pleural sac contained 2,000 c c of purulent fluid The lung was atelectatic The right pleural sac showed no adhesions or fluid The lung showed generalized edema except at the base, where there was consolidation The visceral pleura showed numerous small hemorrhagic foci There was moderate congestion of the parietal pericardium and moderate increase of clear yellow fluid in the sac The heart was not opened The mesenteric lymph nodes were not enlarged The retroperitoneal group were somewhat enlarged, much congested and resembled hemolymph nodes (The notes are condensed, as permission for only a partial necropsy was obtained)

The pathologic diagnosis was suppurative pleuritis, pulmonary atelectasis, edema, emphysema, hemorrhagic infiltration and hypostatic pneumonia, congestion of spleen, acute parenchymatous nephritis and anemic infarction, passive congestion and fatty degeneration of liver, congestion of pancreas, hemorrhagic infiltration and endothelial hyperplasia of retroperitoneal lymph nodes, hemorrhagic infiltration of diaphragm, *Trichina spiralis* in biceps, soleus, gastrocnemius and diaphragm (No evidence of parasites in viscera or pleural fluid)

SUMMARY

The average incubation period was three weeks One third of the cases presented no orbital edema, three quarters, no eruption, four fifths, no bronchitis, none showed splenic enlargement Eleven cases showed a disproportionately low pulse rate, to which little attention has been called The maximum eosinophilia was 75 per cent Of nine cases, eight showed trichinae in the muscles, of the fifteen cases, none were found in the blood or feces, of twelve cases, one showed an embryo in the cerebrospinal fluid, of eleven cases, none were found in the urine, of fourteen cases, ten showed albumin in the urine The mortality was 6 6 per cent The fatal case presented a hypostatic pneumonia and a large pleural effusion

COMMENT

Evidently the parasites traverse the venous channels in very small numbers for mechanical reasons and probably *none* in some cases It would appear that in many cases they suffer partial or complete disintegration in the intestinal tract A routine spinal fluid examination may show that the nervous tissues are invaded in many instances, but it does not seem likely that this will serve as a useful diagnostic procedure in the study of the disease If routine urinary examinations are made for parasites, it seems not improbable that invasion of this tract may be demonstrated

New Instruments and Suggestions

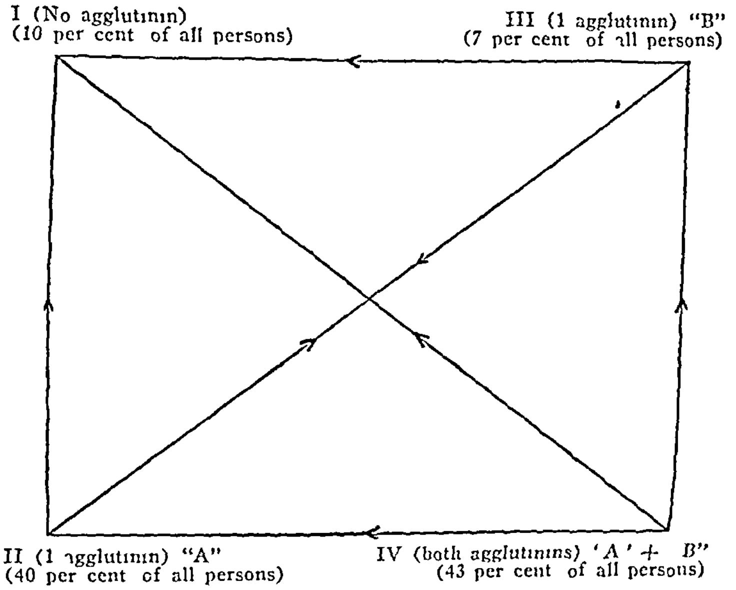
ISO-AGGLUTINATION GROUPS

A DIAGRAM SHOWING THEIR INTERRELATION *

A H Sanford, M D, Rochester, Minn

Recently Brem[1] has published a very comprehensive review of his results with his own practical application of Moss' principles It would seem futile to try to add any information to that presented Our own experience with Brem's microscopic method has proved its worth conclusively as a time-saving procedure in determining the suitability of donors for transfusion However, in explaining the Moss agglutination groups to clinicians, we have found that some confusion arises regarding the relation of the four groups unless a careful study has been made of Moss' tables, but that the principles are readily grasped by referring to the accompanying diagram

The diagram explains itself Lansteiner's[3] idea regarding the number of agglutinins is all that is necessary to explain the reaction, if we consider that the serum of Group II contains Agglutinin A and that of Group III contains agglutinin B, while Group IV contains both Agglutinin A and Agglutinin B Group IV then agglutinates the corpuscles of Group II by virtue of its Agglutinin B, and its Agglutinin A acts on the corpuscles of Group III


I (No agglutinin)
(10 per cent of all persons)
III (1 agglutinin) "B"
(7 per cent of all persons)
II (1 agglutinin) "A"
(40 per cent of all persons)
IV (both agglutinins) 'A' + B"
(43 per cent of all persons)

Moss Agglutination groups The corpuscles of the various groups are agglutinated by the serums of the groups from which the arrows lead

Ottenberg's[4] well known grouping can be applied to the same diagram by merely exchanging the numerals I and IV, as his Group I agglutinates all corpuscles, and there is no agglutinin in his Group IV

It is preferable but not always necessary in transfusion that donor and recipient belong to the same group The essential for safety is that the serum of the recipient should not agglutinate the corpuscles of the donor The diagram tells at a glance to what group a person must belong in order to be a suitable donor for an individual of another group *If the arrow points toward the patient's group, and away from the group of the donor,* the transfusion may be done without what Brem has called "anaphylactoid" reaction It must always be remembered that on the diagonal connecting Groups II and III the arrows point in both directions and that blood in these reciprocal groups should never be interchanged. It is evident, then that 100 per cent. of persons can be used as donors for patients of Group I, 83 per cent. for those of Group II, and 50 per cent. for those of Group III. For those of Group IV only 43 per cent. are available as donors, as a patient of this group must have a donor of the same group.

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* From the Mayo Clinic

[1] Brem, W V Blood Transfusion, With Special Reference to Group Tests, The Journal A M A, July 15, 1916 p 190

[2] Moss W L Studies on Isoagglutinins and Isohemolysins Bull Johns Hopkins Hosp, 1910, xxi, 63

[3] Lansteiner, K Ueber Agglutinationserscheinungen normalen menschlichen Blutes, Wein klin Wchnschr, 1901, xiv, 1132

[4] Ottenberg, R Studies in Isoagglutination, Jour Exper Med, 1911, xiii, 425

A SIMPLE METHOD FOR THE DETERMINATION OF NITROGEN IN URINE *

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This is a slight modification of the method given by Myers and Fine, which, in turn, is a modification of the colorimetric method of Folin and Farmer.[1] The only difference in technic is that of adding hydrogen peroxid to hasten oxidation, which considerably shortens the time of making the test. In the method of Myers and Fine, fully fifteen to twenty minutes is required to complete the determination. As here described, the estimation may be completed in from five to ten minutes.

In the method as described by Myers,[2] for the determination an amount of urine sufficient to contain between 0.35 and 0.75 mg. of nitrogen is required. This is usually obtained by a 1:25 dilution of urine, although sometimes a dilution of 1:10 is sufficient, as indicated by a low specific gravity. One c.c. of urine is taken with an Oswald-Folin pipet and diluted to 25 c.c. with distilled water in a volumetric flask. After thorough mixing, 1 c.c. of this material is placed in a thin glass test tube, from 5 to 7 drops (0.1 c.c.) of concentrated sulphuric acid, from 50 to 100 mg. of potassium sulphate and a drop of copper sulphate (10 per cent.) added. The tube is now boiled by hand with continued shaking until the contents become dark brown and then, while the tube is warm (not hot), a drop of hydrogen peroxid is added, and if not clear, it is heated about one minute until clear. It is this part of the technic that we have modified, namely, the addition of hydrogen peroxid. When digestion is completed, the tube is allowed to cool for a minute and then washed into a 50 c.c. volumetric flask or accurate 50 c.c. graduate (A) with about 35 c.c. of distilled water. Five c.c. of ammonium sulphate solution containing 1 mg. of nitrogen per 5 c.c. is pipetted with an Oswald-Folin pipet into a 50 c.c. volumetric flask (B), the Hellige colorimeter is to be employed and about 30 c.c. of distilled water added. Ten c.c. of the modified Nessler's solution are diluted with 40 c.c. of distilled water just previous to use, mixed, and the material in the second volumetric flask, standard, at once made up to volume with the diluted Nessler's solution. The solution in Flask A, unknown, is then made up to volume with the diluted Nessler's solution as in Flask B, except that the Nessler's solution is added slowly at first while rotating the flask, until the alkali of the Nessler's has neutralized the sulphuric acid. A dry, glass-stoppered wedge for the Hellige colorimeter is filled with the standard solution and adjusted in the colorimeter. Slightly over 2 c.c. of the unknown solution are then next placed in the empty cup, inserted into the colorimeter and the colors matched, preferably with a north light. The amount of nitrogen in 1/25 c.c. of urine may be ascertained in the accompanying table, from which the nitrogen content of the specimen of urine under examination may easily be computed. Since the figures in the table are given for a dilution of 100 c.c. and the dilution here employed is 50 c.c., the result obtained should be divided by 2.

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TABLE FOR THE ESTIMATION OF NITROGEN WITH THE HELLIGE COLORIMETER

Colorimetric Reading	Nitrogen, Mg. per Dilution of 100 c.c.	Colorimetric Reading	Nitrogen, Mg. per Dilution of 100 c.c.	Colorimetric Reading	Nitrogen, Mg. per Dilution of 100 c.c.
20	1.73	40	1.31	60	0.89
21	1.71	41	1.29	61	0.87
22	1.69	42	1.27	62	0.85
23	1.67	43	1.25	63	0.83
24	1.65	44	1.23	64	0.81
25	1.62	45	1.20	65	0.78
26	1.60	46	1.18	66	0.76
27	1.58	47	1.16	67	0.74
28	1.56	48	1.14	68	0.72
29	1.54	49	1.12	69	0.70
30	1.52	50	1.10	70	0.67
31	1.50	51	1.08	71	0.65
32	1.48	52	1.06	72	0.63
33	1.46	53	1.04	73	0.61
34	1.44	54	1.02	74	0.59
35	1.41	55	0.99	75	0.56
36	1.39	56	0.97	76	0.54
37	1.37	57	0.95	77	0.52
38	1.35	58	0.93	78	0.[illegible]0
39	1.33	59	0.91	79	0.48

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* From the Chemical Laboratory of the Pasteur Institute of St. Louis.

[1] Folin and Farmer: Jour. Biol. Chem., 1912, xi, 493.

[2] Myers: Essentials of Pathological Chemistry, 1913.

Therapeutics

HYPERTENSION

(Continued from page 745)

TREATMENT

In this rapid high tension age the physician should be as energetic in teaching prevention of arterial hypertension as he is in preventing contagion. As infectious diseases are reduced in frequency, more patients live to die of diseases later in life, and (as previously stated) diseases with hypertension are on the increase. It is therefore the duty of the physician to urge youths and adults to abstain from all kinds of excesses so common in this age. We live at such speed, even the children, that this caution is almost daily needed. We must caution against severe athletic competition, against personal "stunts," against recreation excesses, even golfing, automobiling and dancing, against excess in the use of tobacco, in eating, in late dinners, in coffee, tea and alcohol. We must take better care of patients during their convalescence from some serious illness lest they have circulatory debility by becoming strenuous too soon after their recovery. The pregnant woman must be more carefully watched, not only for her own sake, but also for the sake of her child. Intestinal indigestion, while not the cause of all disturbances that occur in man after 40, is still an important element in his deterioration and degeneration, and it should be prevented if possible.

The tendency for hypertension and arteriosclerosis to occur early in life in patients who have suffered some serious acute infection, whether blood poisoning, typhoid fever, or other, shows that in all probability in these acute illnesses the internal secretions are so disturbed that the suprarenal activity is greater than normal, while the thyroid activity may be less than normal, and hypertension is the consequence. Therefore, these infected patients who recover should probably have a longer convalescence in order for the more delicate structures of the body, such as the internal secreting glands, to have a better chance to recover and become normal.

The enumeration of these causes and the causes that have been mentioned before not only suggest, but also direct the treatment of hypertension after it has occurred. The most important of all treatment for hypertension is rest. That means for an individual, well except for his hypertension, a vacation, that is, a rest from physical and mental labor. For a patient who is in serious trouble from hypertension, bed rest is the most important element in the management. As has been previously shown, good sleep lowers the blood pressure, and Brooks and Carroll[59] showed that the greatest drop in blood pressure occurs in the first part of the night's sleep In other words, a patient who lies awake long loses the best part of his night's rest as far as his circulation is concerned This is one more reason for abstinence from tea and coffee in the evening by those patients who are at all disturbed by the caffein On the other hand, patients who are not seriously ill should not remain for days in bed, as the blood pressure does not tend to continue to fall, although the heart may become weakened by such bed rest This is especially true if the patient is nervous and irritable and objects to such confinement

A systolic pressure much over 200 probably never goes down to normal, and if such a high systolic pressure goes down to below 170, we should consider the treatment successful

Every active treatment of hypertension should begin with a thorough cleaning out of the intestinal canal by purgation, best with mercury in some form Then the diet should be modified to meet the individual case and the person's activity If the blood pressure is dangerously high, he should receive but little nourishment, best in the form of cereals and skimmed milk

On the other hand, if he has edema or dropsy, or if the heart showed signs of weakness, large amounts of liquids should certainly not be given, and in such cases it is better that he receive small quantities of milk if that agrees, rather than large quantities of skimmed milk The amount of water should also be fitted to the circulatory ability and the condition of the kidneys

When more or less active treatment does not soon lower the hypertension, and especially a high diastolic pressure, the prognosis is bad In a patient who is in more or less immediate danger from his hypertension, the food and liquid taken, the care of the bowels, and the measures used to cause secretions from the skin must all be governed by the condition of his other organs There is no excuse for excessive, strenuous measures when the heart is failing or when the kidneys are becoming progressively insufficient Strenuosity in treatment is as objectionable in these cases as is neglect of treatment in earlier stages of the trouble

Bie[60] believes there is no direct connection between the blood pressure and the anatomic condition in the kidneys, although abnormal conditions in the two are almost invariably found parallel

A patient with simple hypertension and otherwise well, which means that his diastolic pressure is at least no higher than 110, should have his diet, tobacco, coffee and tea regulated, should have recreation periods one or more times a week, and vacations not too infrequently, should take some brisk purgative once or twice a week, and may receive one or other of the physical treatments for the reduction of blood pressure, whether Turkish baths or electric light baths If he does not sleep well, there is no hypnotic drug so valuable in his case as chloral This should not be long given, but it will produce the purest kind of sleep and lowers the blood pressure

If any other drug is needed, nitroglycerin is the best If arteriosclerosis is present, sodium iodid in small doses, 3 grains two or three times a day, is valuable Larger doses of sodium iodid are not needed, unless it is advisable to give such doses for a short period The value of iodid in these cases is best obtained by small doses long continued If the patient is obese, small doses of thyroid extract long continued are of value, such as 2 or 3 grains once a day If the thyroid extract causes the heart to become more rapid, it should be discontinued

Whether the diet should be meat protein free, or whether meat may be allowed once a day, depends entirely on the individual and on his physical activities It is frequently a mistake to take all meat out of his diet

When there is obesity, the bulk of the food should be greatly diminished, and anything that tends to stimulate the patient's appetite should be withheld This means all condiments, and at times even salt Sugar should be greatly reduced, and starches greatly reduced, but he must have some In other words, he should not be cut down to a diabetic diet No more liquid should be taken with the meals than is essential to swallow the food Water should be taken between meals There is no question that almost every one today should have a very light breakfast, except perhaps those who labor hard physically and are exposed for hours, daily, to the inclemencies of the weather Such patients probably need more food It is also well, in hypertension cases, to have one day a week in which a very minimum amount of food is taken, whether that be milk, or skimmed milk, or a small amount of carbohydrate, without protein food

If the foregoing management does not reduce hypertension, the kidneys are generally beginning to become involved in the sclerotic degeneration, whether the urine shows such a condition or not On the other hand, there are exceptions to this rule

As indican in the urine gives evidence of putrefactive changes in the intestines and the probability of the absorption of toxins from the intestines, although we have no real proof that these toxins are the direct cause of hypertension, our patient is undoubtedly physically better, and will have less arterial tension when this intestinal condition is removed Therefore, our treatment of the individual is not a success as long as such fermentation and putrefaction persist If such putrefaction cannot be removed by diet and laxatives and mental rest and the prevention of physical strenuosity, radical changes in diet are advisable, although it may not be necessary to continue such a diet more than a few days at a time A rigid milk diet for a few days may change the flora of the intestine completely, then a vegetable diet may be given, with return to a mixed diet, or the various lactic acid bacilli may be given, or one of the various fermented milks may be the diet, the object being to change the flora in the intestine and thus modify the ferments So-called bowel antiseptics, such as salol, for a short time may be of advantage Colon washings may be of great advantage Liquid petroleum may be advantageous

Besides preventing the absorption of toxins from the intestine, we must prevent such absorption from any latent infection The most frequent kind of such infection is pyorrhea alveolaris

A simple method that sometimes is an efficient aid in lowering the blood pressure is complete muscular and mental relaxation The patient lies down for a while in the middle of the day and relaxes every muscle of his body With this he may take slow breathing exercises He should be in a dark room, quiet if possible, and alone, and should teach his brain to be for a short time mentally inert

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[59] Brooks, Harlow, and Carroll, J H A Clinical Study of the Effects of Sleep and Rest on Blood Pressure, Arch Int Med, August, 1912, p 97

[60] Bie Ugesk f Læger, March 4, 1915

The physical methods of lowering the blood pressure are hydrotherapeutic, whether by warm baths or more strenuously by Turkish baths, by hot air baths (body baking) which is occasionally very efficient, or, perhaps more now in vogue, by electric light baths The duration of these baths, and the frequency, must be determined by the results If the heart is made rapid, and the heart muscle shows signs of weakness, the duration of these baths must not be long, and they may be contraindicated These baths are most efficient in lowering the blood pressure when the patient reclines for several hours after the bath The amount of sweating that is advisable in these cases depends on the condition of the heart If the heart muscle is insufficient, profuse sweating is inadvisable Also if the kidneys are insufficient, profuse sweating is inadvisable as tending to concentrate the toxins in the blood On the other hand, when the surface of the body tends to be cool, and there are internal congestions, the value of these baths is very great Sometimes the electric light baths increase the tension instead of diminishing it, and when properly used they may be of benefit in some cases of hypotension The frequency of the baths and the question of how many weeks they should be intermittently continued, depend on the individual case After a course of such treatment sometimes patients have a diminished systolic blood pressure not only for weeks, but even for months, provided they do not break the rules laid down for them

The Nauheim baths, while stated not to raise the blood pressure, are not much advocated in hypertension, and Brown,[61] who made more than 500 observations of patients of all ages, found that the full strength Nauheim bath would raise the blood pressure in all feverish and circulatory conditions He also found that a fifteen minute sodium chlorid bath, 7 pounds to 40 gallons, at a temperature of from 94 to 98 F , lowered the pressure from 10 to 15 mm This is not different from the effect obtained from a fifteen minute warm bath at from 94 to 98 F , or a fifteen minute mustard bath of the same temperature In other words, the slight irritation of mustard or of salt in a warm bath made no special difference in the amount of lowering of the blood pressure On the other hand, he found that a fifteen minute calcium chlorid bath, 1½ pounds to 40 gallons, at 94 F , raised the blood pressure 15 mm

The autocondensation treatment to lower the blood pressure is not so satisfactory as it was hoped to be The blood pressure can thus be lowered, but it soon again rises, and probably generally more rapidly than after the bath treatments, and in some persons causes considerable depression Van Rensselaer[62] has reviewed this subject of high frequency treatment, and recalls the fact that Nicola Tesla demonstrated, in 1891, the form of electricity which we now term high frequency High frequency means more than 10,000 cycles per second, at which frequency muscles do not contract and pain is not felt, whereas in medicine the frequency of the currents used runs up into the hundreds of thousands, or even into the millions The French investigator, d'Arsonval, studied the physiologic action of these high frequency currents and found that the respiration and heart are made more rapid and the blood pressure is reduced, while the intake of oxygen is increased and the carbon dioxid excretion is increased The temperature may rise The excretion of the urinary solids is mostly increased Perspiration may be caused, and he believes the glandular activities are increased In a word, metabolic changes in the body are made more active and the blood pressure is lowered

Besides the effect of altitude on blood pressure, as previously declared patients with dangerously high blood pressure should, if possible, not be subjected to intense cold In other words, a person with hypertension, if financially able, should not remain in a cold climate during the winter On the other hand, even if he is stout and feels sufficiently warm with light clothing during the winter, his skin becoming chilled adds to his tension Therefore he should be clothed as warmly as he will tolerate

After a period which may be termed the normal period of hypertension in normal life, as age advances the systolic tension may lower, provided there is no kidney lesion This is due to the slowly developing chronic myocarditis and a lessening of the tension and therefore lessening of the resistance to the heart This may be nature s method of lengthening the life of the individual In other words, as the arteries grow older the force of the heart slightly lessens, the blood pressure lowers, and the individual is safer This frequently occurs in otherwise perfectly normal individuals without treatment

When the blood pressure is suddenly excessively high from any cause, venesection may be life saving, and should perhaps be more frequently done than it is It may save a heart that is in agony from tension, and may prevent an apoplexy It is of little value except temporarily in uremic conditions, but at other times it may, at the time, save life and allow other methods of reducing the dangerous tension to become effective A chronic high tension patient may be repeatedly bled, although such treatment will not long save life, as the blood pressure in many such cases soon returns to its previous height

Some very high tension cases, especially in women at the menopause, and where there is no kidney involvement, have the blood pressure reduced successfully only by large doses of thyroid, sometimes well combined with bromids, especially if the thyroid causes excitation Such treatment persisted in for a time may cause months of improvement, and even years

(To be continued)

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[61] Brown California State Jour Med November 1907 p 279

[62] Van Rensselaer Month Cycl and Med Bull November 1912, p 643

Eclampsia in Porto Rico —J S Belaval reported recently to the Porto Rico Medical Association that he had found albuminuria in 20 3 per cent of the 462 obstetric cases during the last thirty months at the San Juan Maternity Eclampsia developed in 7 3 per cent of the 462 obstetric patients He cites figures from other countries showing that the proportion of eclampsia cases averages from 0 5 to 0 75 per cent elsewhere In the entire city of San Juan there were only six other cases of eclampsia known during the same period, and throughout the island the proportion was only 1 to 1,044 deliveries In San Juan it averaged 1 to 420 but the patients were almost exclusively of the poorer classes, lacking medical care until the convulsion developed In the maternity the mortality was 29 4 per cent., but outside of it, 60 per cent He is an advocate of prompt delivery when eclampsia develops, but this occurred spontaneously in all his cases (*Boletin de la Asociacion Medica de Puerto Rico* 1916, xiii 68) He agrees with those who accept a fetal origin for the eclampsia, because it generally improves after expulsion of the fetus, is most common during the later months of a pregnancy and because it is proportionately more common in twin pregnancies and in cases of hydramnion

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SATURDAY, SEPTEMBER 9, 1916

THE ORIGIN OF THE BILE PIGMENTS

Evidence has recently accumulated which places certain features of the origin and functions of the bile in a new light Inevitably one associates the production of the characteristic biliary constituents — the pigments and the bile salts — with the activity of the liver This organ has been looked on as the chief place of disintegration of hemoglobin in the body, or at any rate hemoglobin formed by dissolution of erythrocytes is believed to be brought to the liver, there to be converted into the iron-free bile pigments, bilirubin and biliverdin Many observations seem to speak in favor of this Injection of hemoglobin into the circulation, for example, causes increased secretion of bile pigment

There are accumulating evidences, however, that the biliary pigments may be formed in the body elsewhere than in the liver The most recent indications in this direction are the observations of Whipple and Hooper[1] Thus they have noted that after intravenous injections of hemoglobin solutions in the form of hemolyzed erythrocytes, the transformation of the blood pigment into bile pigment occurred quite as well in animals in which the circulation of the liver was largely sidetracked by means of an Eck fistula as it did in normal subjects The formation of bile pigment also occurred on removal of the liver, spleen and abdomen from the circulation, as well as by circulation of blood through the head and thorax To account for this the experimenters suggest the possibility that the endothelial cells are here active, so that the transformation of hemoglobin can take place even without the medium of the hepatic tissue Hooper and Whipple[2] have further found that the pleural and peritoneal cavities can rapidly transform hemoglobin into bile pigment They believe, indeed, that this extrahepatic transformation of the blood pigment into its biliary derivative may be more important than is generally supposed, particularly in diseased conditions associated with icterus or hemoglobinuria

One might now be inclined to inquire, in view of all the facts presented, whether the bile pigments are only eliminated by the liver, or whether they are also formed in it But, further than this, recent researches have given justification for the question whether the production of bile pigments as a rule is not in part due to the functional activity of the liver and not solely dependent, as is so generally taught, on the breaking down of red corpuscles In an exceptionally careful and extensive series of experiments at the George Williams Hooper Foundation for Medical Research at the University of California Medical School, Whipple and Hooper[3] have observed that variations in the character of the diet provoke unexpected changes in the output of biliary pigment in the bile Thus a large dose of sugar by mouth will give a constant reaction in a healthy dog with a bile fistula It will cause a definite increase in bile pigment excretion over a period of several hours The same rise in the curve of bile pigment elimination follows intravenous injection of dextrose A mixed diet in a healthy bile fistula dog is associated with a fairly constant mean bile pigment elimination A change to a meat diet will give a depression of this average bile pigment elimination A change to a diet rich in carbohydrates will give a sharp rise in bile pigment output — often from 30 to 100 per cent increase Such modifications of bile pigment elimination may be carried on indefinitely with a healthy animal

Do not such facts contradict the current hypothesis concerning the exclusive origin of the bile pigments from hemoglobin liberated by the disintegration of red blood cells? As Whipple and Hooper put it Can one assume that a carbohydrate diet will cause the dissolution of a small army of red blood cells to explain the fact that the output of bile pigment may be almost doubled in a sharp transition from a meat diet to a diet rich in carbohydrates? This seems improbable, to say the least The fact that carbohydrates stimulate the excretion of bile pigments in bile fistula dogs makes it seem possible that the bile has some constructive ability in pigment formation which can be modified by diet Whether it is also concerned in the synthesis of other pigments than bilirubin — for example, hemoglobin — need merely be suggested without an attempt at an answer at present

The statement has been made at various times that bile secretion is not essential to health in man The newest investigations of Whipple and Hooper[3] suggest caution if not actual skepticism in relation to such pronouncements In their large experience it has been found that it must be very unusual for a dog to be able to survive on any ordinary diet if the bile is completely excluded from the intestine If such exclusion is accomplished the animal loses ground steadily, shows intestinal disorders accompanied by blood in the feces, and usually within a month dies with peculiar symptoms of intoxication Feeding of fresh bile seems to afford little amelioration of the disaster, but cooked liver added to the mixed diet seems to be so beneficial that the question of its possible use in certain clinical cases is at once suggested A more extended investigation may throw some light on the chemical character of the liver component responsible for this corrective influence on the abnormal metabolism of animals carrying a biliary fistula

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[1] Whipple, G H, and Hooper, C W Jour Exper Med, 1913, xvii, 612 McNee Jour Path and Bacteriol, 1913 1914, xviii, 325

[2] Hooper, C W, and Whipple, G H Jour Exper Med, 1916, xxiii, 137

[3] Hooper, C W, and Whipple, G H Bile Pigment Metabolism I, Bile Pigment Output and Diet Studies Am Jour Physiol, 1916 xl, 332 Whipple, G H, and Hooper, C W Bile Pigment Metabolism, II, Bile Pigment Output Influenced by Diet, Am Jour Physiol, 1916, xl, 349

PROTOPLASM AND MITOCHONDRIA

Living matter differs from artificial mixtures of various compounds, such as proteins, fats, carbohydrates, salts and water, which it is known to contain, in particular by the peculiarity of having a definite physical structure A complete destruction of this morphologic make-up means the cessation of life phenomena A group of cells ground to a pulp may still be able to exhibit certain chemical reactions, such as the enzymic responses characteristic of the original tissues which they compose, but the significant biologic functions of the disintegrated cells can no longer be performed To quote Jacques Loeb, "Living matter seen through the microscope invariably offers the same characteristic appearance which has caused biologists to designate it with one general term, namely, protoplasm"

What the actual detailed physical features of this structural basis of life, the protoplasm, are still remains largely a matter of conjecture Some authors have looked on it as a network of fine fibers To this the objection has been raised that the intracellular structures of various kinds, networks, alveoli, etc, can be produced by the fixing reagents which histologists are wont to use According to such an interpretation, these structures have no resemblance to the living condition They must be produced from cell constituents already present, so that certain conclusions are admissible from the examination of fixed cells Protoplasm in the living state, the physiologist Bayliss writes, has the properties of a liquid system, containing, however, particles of solids and droplets of immiscible liquids in a freely movable state The protoplasm itself in the narrower sense is structureless to the highest powers of the microscope, with ordinary forms of illumination Yet it is not homogeneous like water, for, under the intense oblique illumination of the ultramicroscope, protoplasm presents the characteristics of a colloidal system

Schultze long ago defined protoplasm as a glasslike, semifluid material in which granules are embedded Attention has been directed of late to a class of granulations which are believed to be more or less distinct chemically, morphologically and physiologically, and which occur in almost all protoplasm They have been termed "mitochondria"[1] These structures are not fixed, in their morphologic characteristics They vary in form from granules (of from 0 2 to 2 microns) to rods and filaments, which may be straight, curved or even forked Sometimes they are ring-shaped or pear-shaped, and possess bleblike swellings Networks rarely occur To M R and W H Lewis[2] of the Johns Hopkins University is credited the observation of changes in form in individual mitochondria by observations of living cells in tissue cultures Filamentous mitochondria have been seen changing to granular ones, they can move rapidly and freely from place to place in the cytoplasm

Mitochondria have been defined provisionally by Cowdry[1] of the Anatomical Laboratory of the Johns Hopkins University as 'substances which occur in the form of granules, rods and filaments in almost all living cells, which react positively to janus green and which, by their solubilities and staining reactions resemble phospholipins and, to a lesser extent, albumins" From this description it becomes clearer why, despite the enormous amount of detailed attention which has been devoted to the study of cell structure for many years, so little has been heard of these supposedly important and conspicuous components One reason apparently lies in the fact that, being lipoidal in nature, the mitochondria are disintegrated by the more common organic histologic reagents Furthermore, we are reminded that the cell nucleus with its significant chromatin has remained the center of investigation for a long time, particularly since it has been designated as the most important structural feature of the cell

The wide occurrence of these lipoid-protein cytoplasmic components, their apparent quantitative variations in different types of cells and under varying functional states, and their alleged metamorphoses of form in the course of cellular life suggest that the mitochondria participate in some way in cellular metabolism The possible bearing on cellular pathology of these particles representing complexes of substances in various states of aggregation, associated perhaps by forces of surface tension, electric charge, etc, and shifting with chemical changes in their environment, is indicated by a quotation from Cowdry

> It is impossible to predict whither this mitochondrial work will lead us in pathology, certainly, however, toward a truer appreciation of the importance of the behavior of protoplasm in pathological conditions, because now we have a cytoplasmic criterion of cell activity as well as a nuclear one[1]

At any rate, such enthusiasm may contribute to the revival of interest in protoplasm, already evident in the more recent investigation of the survival of isolated tissue cells

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[1] The essential facts in regard to mitochondria are taken from the paper by Cowdry E V The General Functional Significance of Mitochondria Am Jour Anat 1916 xix, 423

[2] Lewis M R and Lewis W H Mitochondria in Tissue Cultures Am Jour Anat 1915 xvii, 339

DIET, ALCOHOL AND ACIDOSIS

The phenomena of acidosis have been studied, as a rule, either in animals subjected to experimental conditions which evoke the desired symptoms, or in human patients in whom they are present as the result of disease This has been true notably in diabetes, a condition which, of course, cannot be temporarily reproduced at will in man The presence of severe acidosis with manifestations of ketonuria is not entirely devoid of discomfort to the subject, thus furnishing an additional reason for the lack of extensive data on the controlled production of the disorder Ketonuria characterized by the elimination of acetone and aceto-acetic acid has long been recognized as a symptom of inanition Complete abstinence from food is not necessary for the production of this condition It is generally admitted that in man the exclusion of carbohydrates from the food or a marked diminution of their intake or utilization may lead to more or less increased elimination of ketone substances with a consequent acidosis Inasmuch as this outcome is promptly stopped by the administration and assimilation of carbohydrate food, the carbohydrates are properly regarded as "antiketoplastic" or "antiketogenic" compounds Other substances, including alcohol and compounds believed to be converted into sugar in the body, are said to act in the same way

There has been much confusion in the literature regarding the detailed manifestations of the form of acidosis just described, in part owing to its usual association with metabolic disease, and in part as the result of apparent experimental contradictions obtained with animals of different species For this reason it is most advantageous to have a new series of carefully conducted investigations on normal men under conditions of rigorous scientific control Combining the facilities of the nutrition laboratory of the Carnegie Institution in Boston with the medical clinic of the Peter Bent Brigham Hospital, Higgins, Peabody and Fitz[1] have studied the production of acidosis induced in normal persons by carbohydrate starvation, as exemplified on a diet of eggs, butter, meat, fish and sugar-free cream fed in abundance The high content of fat in the carbohydrate-free ration was selected with the idea of provoking a high degree of acidosis For the present the fats are considered as the most important sources of the ketone substances of an acid character

What criteria, it will at once be asked, were employed to demonstrate the actual occurrence and the degree of acidosis? The best single index at the present time presumably is the carbon dioxid tension of the alveolar air This gives a clue to the amount of acid in the blood at any given time, and is independent of its excretion In the cases under consideration, in which the carbohydrate diet was continued several days, the acidosis was clearly shown by a lowered carbon dioxid tension There was likewise an increased urinary excretion of ammonia, another factor conspicuous in the neutrality regulation of the organism Furthermore, along with the increased excretion of ketone substances, that is, ketonuria, there was a parallel excretion of acid as measured by the titratable acidity of the urine

The foregoing facts may be taken to establish the character of the acidosis developed by carbohydrate starvation on an otherwise adequate diet It was attended by subjective effects, among which "loss of appetite, lack of energy, heaviness of the head and a peculiar feeling of malaise" were the most prominent symptoms Increased oxygen consumption, a negative nitrogen balance, increased pulse rate and increased pulmonary ventilation were further observed

Contrary to the expectations from some of the published investigations, alcohol, given to the subjects on the carbohydrate-free diet, in dosage comparable to that used for clinical purposes, failed to stop the progress of the acidosis or show any antiketogenic action The Boston investigators agree in finding that coincident with the administration of alcohol there was further increase in the oxygen consumption and in the disagreeable subjective symptoms It was thus without apparent effect, at any rate, on the acidosis induced in normal subjects by taking a carbohydrate-free diet All the symptoms were promptly alleviated, and the subjects began to feel much better immediately after the first carbohydrate meal was again eaten The contrast was most striking, and is not without interest in relation to the much discussed food value of alcohol

THE FOOD CONSUMPTION OF ADOLESCENT BOYS

Statistics of the food consumption of normal adults are available in large numbers, particularly since the modern era, in which a profound interest in the problems of human nutrition has begun to engross the attention of physiologists The recent trend of interest in the subject of infant feeding has also brought with it illuminating data regarding the needs of the human individual in the early periods of life Pediatric literature is not devoid of well established facts respecting the caloric requirement of the infant, but there is a singular dearth of statistics pertaining to the actual food intake and consequent dietary habits of young boys and girls Indeed, both the physiology and pathology of the adolescent period offer abundant opportunity for the extension of knowledge

Somehow it is difficult and unusual to collect the basic facts regarding the functional needs and performances in this period of youth Du Bois has shown, by accurate measurements in the respiration calorimeter at the

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[1] Higgins, H L, Peabody, F W, and Fitz, R A Study of Acidosis in Three Normal Subjects with Incidental Observations on the Action of Alcohol as an Antiketogenic Agent, Jour Med Research, 1916, xxxiv, 263

Russell Sage Institute of Pathology, that the basal requirement of boys in metabolism is 25 per cent above that of the adult A recent investigation by Gephart of the same laboratory[1] affords an insight into the actual amounts of nourishment taken by more than 300 boys in one of the largest private boarding schools in the United States The total annual supply for such an institution containing 355 boys was computed as follows, in metric tons [2]

	Protein	Fat	Carbohydrate
Food supply	20 5	25 6	60 5
Waste	3 8	5 4	4 2
Food fuel	16 7	20 2	56 3

The quantity of food, computed on the basis of the individual meal served, appears as follows

	Pounds	Grams	Calories	Calories (Per Cent)
Protein	0 1107	50 2	206	14
Fat	0 1332	60 4	562	39
Carbohydrates	0 3717	168 8	692	47
			1 460	100

* Seventy per cent of this was in animal protein

The food was of the best quality, and included 193 separate varieties The cost per meal was 20 cents, or 13 8 cents per thousand calories This is twice what the poor man in New York City pays for his food But these growing athletic boys were not satisfied with the conventional 3,000 calories per day The investigator of their dietary ascertained that beside the 4,350 calories which they consumed daily at the table, they bought 650 additional calories in food at a neighboring store, the principal item being chocolate

Lusk[1] has called attention to the fact that the 5,000 calories thus contained in the daily diet of active American boys of school age are half again as much as a farmer at work is believed to require This salient statistical discovery, based on a liberal series of observations rather than on a few scattered data, deserves emphasis to medical men, who are often called on to advise in matters of diet during childhood and adolescence The total fuel intake of the boarding school boys was three times that of the basal level of from 1,700 to 1,800 calories, which is the heat production of boys from 13 to 16 years of age when resting or asleep Such findings explain the ravenous appetite of boys Lack of appreciation of this factor, says Lusk, and lack of provision for it, are the probable causes of much of the undernutrition seen in children of school age

A liberal and adequate dietary does not necessarily draw heavily on many sources of food In the selections for the school referred to, twelve dietary items yielded 75 per cent of the requisite fuel value, the remaining 25 per cent being distributed among the 181 other varieties of food It is surely not without significance that bread, butter, milk and sugar together furnished half of the food fuel They form an exceptionally wholesome combination

PUBLIC DECENCY AND PUBLIC HEALTH

Hygienists are beginning to recognize that some of the public expenditures which are the outcome of modern demands for improved sanitation are not always directly justifiable on the plea of a menace to public health Municipal baths, for example, embody elements of comfort and personal luxury as well as factors which contribute indirectly to health Certain aspects of the complex problems of garbage collection, such as the transportation of decaying organic matter through public thoroughfares, are often objected to on the plea of danger to the health of the community, whereas it is usually the senses of sight and smell that are offended rather than the general physical well-being of the persons concerned

It is important, where so many demands are continually being made on the public purse as well as on philanthropic resources, to analyze public needs thoroughly and locate them exactly In the long run it does not pay to secure alleged benefits on a specious pretext For this reason it is a sign of progress to see that some of the demands which a hasty consideration might ask health authorities to satisfy are henceforth to be charged to the needs of public decency The distinction has been clearly exposed by the director of the Department of Social Welfare of the New York Association for Improving the Condition of the Poor[1] He has pointed out that many communities provide the means for the cleansing of human bodies It is just as essential to health and decency that public facilities, where private ones are lacking, should be provided for the cleanliness of the garments, the condition of which must otherwise lower the tone of decency of the people of the community Decency is emphasized by Armstrong, because it is essential that health workers should realize more and more that it is impossible to justify most of our expenditures in certain directions, if we consider these expenditures to be inducive to health alone It is difficult, he reminds us, to ascribe ill health to dirty streets, unsightly back yards, and such undesirable elements in our physical environment for the elimination of which we spend thousands yearly, not in reality to maintain public health, but, as a matter of fact, to establish public decency

Among the mass of the poorly housed tenement population of the large American cities, the facilities for washing and drying clothes are decidedly meager A statistical inquiry among families representing more than 200,000 people on the east and west sides of New York City showed that the percentage of families without equipment was as follows without bath, 92 per cent , without wash tubs in the home, 40 per cent , without hot water, 87 per cent In this country there are as yet few places in which people who have very inadequate home facilities may go and wash their clothes under decent and sanitary conditions for a small cost and with a minimum of time expenditure Public laundries or wash houses have long been in use in foreign cities With thirty-five such institutions in the city of London alone, patronized by nearly a million washers, may be contrasted eighteen in the entire United States, of which five are in Baltimore

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[1] Lusk Graham Food Economics Jour Washington Acad Sc 1916 vi 390

[2] One metric ton equals 2 200 pounds

[1] Armstrong D B The Municipal Laundry Problem Jour Home Economics 1916 viii 422

Experiments now under way by the New York Association for Improving the Condition of the Poor indicate that mechanically equipped wet wash laundries, even when run under quasipublic auspices, are likely to prove successful and fill a need in the community The necessary capital investment is by no means prohibitive of further investigation in this direction Public and private health and decency demand some provision of this sort in many places, even if the scheme adopted is only palliative and the plan not final

Dr Armstrong maintains that suitable municipal washing facilities have an educational value in addition to the purely utilitarian advantages He summarizes his argument as follows The public wash house, like the public bath, finds its chief justification in the fact that it gives to people an opportunity to learn how to be clean, and makes it possible for them to appreciate the value to health and decency of being physically clean Physical cleanliness enhances our moral and spiritual tone The people will recognize more acutely their housing and municipal defects, and will demand even more energetically than at present that equipment for clean bodies and clean clothes, whether within or outside the home, which they will have learned to use and value, and the importance of which, for the preservation of health and the maintenance of decency, they will have been educated to appreciate

INTRATRACHEAL INJECTION IN THERAPY

"A common cause of disappointment," the "Pharmacology of Useful Drugs," states, "is the want of exact knowledge concerning the absorption of drugs It is often asserted, and accepted without question, that because a given substance is very soluble in water, it must necessarily be absorbed readily from the alimentary canal Disregarding the relatively slow absorption of soluble purgative salts, we may call attention to the fact that for some unknown reason, some of the very soluble glucosids are absorbed slowly and irregularly from the gastro-intestinal tract, also that certain glucosids or resins which are wholly insoluble in water are absorbed fairly rapidly from the gastro-intestinal tract In other words, we must recognize the fact that every drug is a law unto itself in regard to its rates of absorption and elimination" In recent years drug therapy has aimed to make more certain the dosage of active substances and their efficient and prompt introduction into the region in which it is desired to have their potency manifest itself For this reason subcutaneous, and latterly intravenous and intramuscular medication have supplanted oral administration of many drugs Absorption is usually better assured, and speedy responses are more likely to follow

The respiratory tract has been widely employed as a path of introduction for volatile substances, of which illustrations are afforded by the general anesthetics chloroform and ether Less volatile substances are sometimes inhaled into the lungs for their local action, and even nonvolatile substances may be thrown into the respiratory passages suspended in a spray of vapor Whether in the latter case the products actually penetrate into the alveoli has been seriously questioned In any event, aside from the use of volatile anesthetics, the production of general in contrast with local effects has rarely been attempted through the channel of the respiratory tract

Recent researches by Auer and Gates[1] have shown that intratracheal injections of potent drugs may be followed by prompt absorption even under disadvantageous conditions, so that the method may prove to be of value therapeutically Experimenting on animals at the Rockefeller Institute for Medical Research, they have found that a simple intratracheal injection of a solution of epinephrin penetrates in a few seconds to the alveoli, chiefly those of the left lower lobe, that absorption is rapid and well maintained, and that the procedure may be repeated effectively a number of times even with a substance, like epinephrin, which decreases absorption

The rapidity with which an intratracheal injection of epinephrin may promote a rise of blood pressure indicates that the absorption of the drug presumably occurs through the capillaries leading to the pulmonary veins It has been demonstrated experimentally that absorption from the lung could be obtained at a time when double the dose of epinephrin given intramuscularly exerted no pressor effect whatever Even after the development of pulmonary edema with the resultant diminution of the absorptive field, the drug was still taken up quite effectively

The intratracheal incorporation of drugs requires a technic which is inconvenient in comparison with the usual clinical procedures The desirability of its application to human subjects remains to be considered, since as far as is known no data are yet available Auer and Gates maintain that the procedure ought to be simple Tracheotomy ought not to be necessary They suggest that a free hypodermic needle could be inserted into the tracheal lumen immediately below the cricoid cartilage and connected with a short length of rubber tubing with a syringe To insure its reaching the alveoli promptly, the amount of solution should not be too small, probably from 3 to 5 c c would suffice The puncture of the isthmus of the thyroid is not considered as significant under circumstances in which grave conditions, such as are encountered in impending cardiac failure, demand prompt attention even at some incidental risk

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[1] Auer, J, and Gates, F L The Absorption of Adrenalin after Intratracheal Injection, Jour Exper Med, 1916, xxiii, 757

It may be asked what advantage such a plan is likely to offer over current heroic measures in human therapy In the first place the intratracheal method could probably be carried out with greater ease than the intravenous injection, particularly in such cases as cardiac weakness, in which the surface veins cannot always be entered promptly and with certainty Moreover, Auer and Gates suggest that it is legitimate to expect some absorption from the lung alveoli as long as the heart-lung circulation persists, no matter how feebly Thus the drug presumably will reach the heart to act on its failing structure more promptly than through introduction by the route of surface veins A serious consideration of the plan in its application to clinical medicine seems justfied by the preliminary investigations

Current Comment

THE COMPARATIVE PHYSIOLOGY OF UREA FORMATION

Comparative physiology — the contrast of the way in which related functions are performed in different types of organisms — has now and then thrown light on the obscurities of human physiology and pathology Sometimes it has pointed to fallacious ideas in our conceptions of the working of the bodily mechanism An illustration of the confusion which has arisen from the apparently conflicting data of comparative physiology is found in the study of the end-products of protein metabolism in different species Whereas, in the case of the higher vertebrates, urea has long been recognized as the preeminent final stage in the disintegration of nitrogenous substances ingested, in birds and reptiles its place is taken by uric acid, a compound of far more complex chemical structure Is urea a stage in the production of this uric acid, that is, is it an intermediary product of protein metabolism in uric acid-excreting species? When the amino acid digestion products of proteins are introduced into the organism of mammals, urea production manifests itself Urea itself, introduced into the circulation of such animals, is rapidly distributed approximately equally in all the tissues except the fatty tissue, kidneys and urinary tract The latter have a higher content, owing to saturation with urea in the process of excretion from the body The fat, with its low content of water, can absorb much less urea than other tissues In contrast with this, Karr and Lewis[1] of the University of Illinois have found that the urea content of the hen, a species excreting uric acid in place of urea, is low The content of the kidneys is uniform with that in other tissues, in conformity with the fact that urea is not an end-product of prime importance in the nitrogenous metabolism of this animal This is further substantiated by the results of injections of a typical amino acid, alanin This likewise leads to no increment in the urea content of the blood or tissues The analogies with the organism of man and the other higher vertebrates thus fail

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[1] Karr W G and Lewis H B A Comparative Study of the Distribution of Urea in the Blood and Tissues of Certain Vertebrates with Especial Reference to the Hen Jour Am Chem Soc 1916 xxxviii 1615

THE NATURE OF BENCE-JONES PROTEIN

The excretion of a protein of somewhat unusual properties in the urine, as it has long been described under the caption of Bence-Jones proteinuria, can no longer be regarded as an extreme rarity in clinical medicine[1] Nevertheless, as the albuminous substance eliminated in this interesting and still unexplained anomaly differs notably from more familiar proteins of either urine or blood, and since it was first described by Bence-Jones as an "albumose," some confusion, not to say uncertainty, regarding its identity and characteristic properties still exists The unusual behavior of the Bence-Jones protein in the urine toward heat — a diagnostic phenomenon which serves to call attention to the anomaly — has contributed to raise the pertinent question whether or not it is a disintegration product of some normal tissue protein, representing (as do the true proteoses) some abnormal breaking down of body structure or pathologic alteration of circulating proteins by some unusual enzyme A recent investigation at the University of Pennsylvania[2] of the typical protein obtained from a patient excreting from 23 to 30 gm of Bence-Jones protein per day indicates that the protein is capable of causing anaphylaxis Introduced in large quantities into the circulation of animals it failed to give the slightest indication of toxic action The normal clotting of the blood spoke strongly against the presence of proteoses which would have been in sufficient concentration to interfere with coagulation This is quite in accord with the anaphylactic activity already described Such indications now confirm the belief that we are dealing with a higher protein of individual biologic stamp and not with a degradation stage in the hydrolysis of any body protein Taylor and Miller have found that this protein in the circulation of the patient is, like the plasma proteins, protected from digestion, but the isolated substance, evidently undenatured, is readily attacked by either pepsin or trypsin This leads them to the comment that if the Bence-Jones protein is to be regarded as foreign to the tissues of the subject, we should by the Abderhalden hypothesis expect that a special ferment would soon be aroused to destroy it in the body, and certainly there would seem to be nothing in the nature of the substance itself to resist such a fate Yet instead of being digested, large quantities of it are excreted in its native condition, apparently free from any hydrolysis, and this can continue indefinitely Under such circumstances, the Philadelphia biochemists conclude, we must dismiss the idea of a protective ferment From every point of view it is clear that this substance in their case as in others is a higher protein, a human product closely related to the normal blood proteins

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[1] The Origin of Bence Jones Protein in the Urine editorial The Journal A M A Oct 24 1914 p 1481 A Crystallizable Urine Protein Current Comment Feb 20 1915 p 669

[2] Taylor A E and Miller C W Studies in Bence Jones Proteinuria Jour Biol Chem 1916 xxv 281

THE CIRCLE NARROWS

Some of the leading advertisers in America have formed an "Association of National Advertisers" These advertisers are spending enormous sums every year in bringing their products before the public through the instrumentality of printers' ink Should the public lose faith in their printed word, the members of this organization would find their business seriously crippled Being reputable concerns and having meritorious products, honestly and truthfully advertised, these advertisers desire that advertising shall stand for a hundred-cents-to-the-dollar in the eyes of the public When the Association of National Advertisers met last spring it adopted a declaration of principles It went on record as being opposed to advertising of the following kinds

All advertising that is "fraudulent or questionable"

All advertising that is "indecent, vulgar or suggestive"

All advertising that is "ambiguous in wording and calculated to mislead"

All advertising that makes "false, unwarranted or exaggerated claims"

All advertising to laymen of "products containing habit-forming or dangerous drugs"

All advertising that makes "remedial, relief or curative claims either directly or by inference that are not justified by the facts or common experience"

All advertising that may "cause injury in health or loss of confidence in reputable advertising and honorable business"

One might almost be excused for thinking that the Association of National Advertisers had the "patent medicine" business specifically in mind when it drew up its declaration of principles Certain it is that practically all "patent medicine" advertising must be declared guilty on one or all counts in the Association's indictment It is impossible to escape the belief that the Association of National Advertisers hasn't much use for the nostrum fraternity But the Association did not stop with the mere declaration of principles It backed up its words by declaring that its members, so far as they were able, would "direct their advertising to those mediums which made the observance of these principles their rule and practice" No wonder the "patent medicine" interests are loudly proclaiming their willingness to be good "The devil was sick, the devil a monk would be, the devil was well, the devil a monk was he!" At present the nostrum industry is far from healthy

Teaching Massage to Blinded Soldiers—An exchange states that two schools have been organized in France for this purpose One is in charge of Dr Guilbert, who has long been blind himself A good knowledge of anatomy is a prerequisite, and a set of relief charts have been made by eminent sculptors to aid in teaching anatomy to the blind The men work alternately as masseurs and as subjects Our exchange remarks further that the use of the metal casques has materially reduced the proportion of cases of injury of the eyes

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

DISTRICT OF COLUMBIA

Poliomyelitis in the District—During the week ended September 2, three new cases of poliomyelitis were reported, one of which was apparently the result of infection in New Jersey There were no deaths The total number of cases reported since July 1 is twenty-six, of which eight represent imported infection The deaths to date number four

Poliomyelitis Regulations too Drastic—The health officer of the District recommended to the commissioners of the District the promulgation of certain regulations for the prevention of poliomyelitis which were based on the minimum requirements laid down by the recent conference of state and territorial health authorities, as noted in The Journal, August 26 They did not, however, recognize the noninfectivity of persons over 16 years of age to the same extent as does the text of the standard minimum requirements, and they placed on persons bringing into the District from infected areas children under 16 years of age the duty of giving the health officer notice of the arrival of such children The health officer's recommendation for the promulgation of these regulations was based solely on the fact that they represented the consensus of opinion of the Conference of State and Territorial Health Officers with the United States Public Health Service and had the endorsement of representative bodies of local physicians The health officer withheld his personal approval of the regulations which he submitted, pointing out that their very severity would tend to prevent reporting, at least in doubtful cases, that the limit placed on the supposed duration of infectivity, six weeks, was without sufficient basis in experiment or clinical observation, that any recognition of a lesser infectivity among persons over 16 years of age than among those of the younger group was without adequate foundation, that neither clinical observation nor efforts experimentally to convey poliomyelitis by natural means from monkey to monkey justified the popular conception of the disease as one that was easily spread by personal contact or that could be effectively checked by any efforts made to isolate persons exposed to the patient, and that the rigorous regulations adopted in New York, Newark, N J, and Philadelphia had seemed to have no effect in checking the spread of the disease The regulations as submitted by the health officer were submitted by the commissioners to the corporation counsel for consideration and have just been returned by him with the statement that because of their severity they would probably not be sustained by the courts unless a grave public emergency existed, and that evidence now available did not show any such emergency

ILLINOIS

State Charities Meeting—The twenty-first annual state conference of Charities and Correction will be held in Alton, October 20 to 22 In connection with this conference the Illinois Association for the Prevention of Tuberculosis, the State Association of County Home Superintendents and the State Association of Probation Officers will hold meetings

Addition to Sanatorium—A ten-foot sleeping porch is being erected which is to stand entirely around the new Rock Island Sanatorium Ten new tents have also been ordered by the new hospital commission Mrs Carolin W Juhl has been appointed head nurse of the hospital——Drs Joseph De Silva and Louis Ostrom, Jr, have been appointed on the building and grounds committee and Drs Bernard J Lachner and Cyrus T Foster on the supplies committee of the sanatorium commission

State Board Rules Regarding Poliomyelitis—Owing to the prevalence of infantile paralysis, the state board of health, August 29, laid down special rules for two sections of the state The first of the restricted areas takes in Macon and Piatt counties, Dora, Lovington and Lowe townships in Moultrie County, and Tunbridge, Texas, Creek and Nixon townships in De Witt County The other comprises all of LaSalle County, Clarion, Westfield and Hall townships in Bureau County, and Evans and Bennington townships in

Marshall County Postponement of the opening of schools is ordered in these localities, and it is provided that no child under 16 years of age shall travel within or out of the restricted area unless in possession of a health certificate

Chicago

Bardeen Lectures at Graduate School—August 31, Dr Charles R Bardeen, professor of anatomy and dean of the Medical School of the University of Wisconsin, Madison delivered an address before the Graduate School of Medical Sciences of the University of Illinois on "Study of the Anatomy of the Heart in the Living by the Use of the Roentgen Ray"

Department of Health Items—August 25, the health commissioner requested the harbor master to intern five boats for violation of the ordinance which provides that boats shall not discharge sewage within 8 miles of the shore The corporation counsel issued an opinion that the city had no power to intern offensive vessels The health commissioner thereupon initiated legal proceedings to enforce the ordinance against lake pollution

Health Certificates for Schoolchildren—The board of education, on recommendation of the commissioner of health, requires this year that all pupils admitted to the public schools on their opening be required to present a health certificate to be furnished by a licensed physician showing that the pupil has no contagious or infectious disease, that there has been no contagious or infectious disease in the home or place of abode of the pupil, and that the pupil has not been exposed to any such disease within two weeks from the date of application for admission to the school

MARYLAND

Standard Entrance Examinations—Standard entrance examinations for professional study which are held yearly, will take place September 18 to 23 at Baltimore Credits earned in these examinations are intended primarily for students of medicine They afford also an opportunity for men who have not been able to pursue a high school course to secure a standing equivalent to a high school diploma, which will be of service to him in other professions These examinations are given under the authority of the Board of Medical Examiners of Maryland by their entrance examiner, assisted by a corps of specialists in different subjects Full recognition is accorded these examinations by the New York State Education Department, placing them on an equality with their own examinations

The Infantile Paralysis Situation—The board of estimates of Baltimore has authorized the city health department to enter into a contract with the Children's Hospital School for the treatment of infantile paralysis cases, as the Harriet Lane Home at Johns Hopkins Hospital, and Sydenham Hospital, the city hospital for contagious diseases, can take no more cases of this character The hospital directors have offered the city thirty beds for $800 a month, the city to contract to pay for the beds for three months In addition, the city is to pay $1 a day for each patient over 30, to reimburse the hospital for any property that has to be destroyed, and to bear the expense of fumigating the hospital when the city's occupancy expires The city must also pay for the removal of all the present patients to the Union Protestant Infirmary and for their care at that hospital——Dr Gilbert W Rosenthal, of the Harriet Lane Home, Johns Hopkins Hospital, an expert on diseases of children has been selected by Health Commissioner Blake as assistant resident physician at the Child's Hospital School, to take charge of the children suffering from infantile paralysis Drs William S Baer and George E Bennett will continue as visiting physicians in charge of the institution Other physicians now there and the regular staff of nurses will remain Dr John F Hogan superintendent of Sydenham Hospital, and Dr William T Howard Jr, assistant commissioner of health, will visit the hospital at frequent intervals——In order to prevent the spread of the disease, thirteen physicians have been appointed to assist in the fight against the disease by watching railroad stations and steamboat wharves for arrivals from Philadelphia, New York and New Jersey and all children under 16 years thus arriving will be kept under surveillance for fourteen days or longer Arrangements are being made to have all automobile roads throughout Maryland watched in like manner

The United States Public Health Service does not regard the situation in Baltimore as sufficiently serious to require its official assistance Asst Surg-Gen William Colby Rucker has consented to detail a physician to assist the city and state authorities in establishing its quarantine

MICHIGAN

Fees for Contagious Disease Reports—Checks varying in amount from 10 cents to $14 and totaling $195 30 have been sent, by the secretary of the board of health of Grand Rapids, to physicians of the city for reports of cases of contagious disease made to the health department

Personal—Dr Philip G Sanderson, Detroit, is a candidate for coroner of Wayne County on the Republican ticket——Dr Frank P Bohn, Newberry, is a candidate for the Republican nomination for lieutenant-governor——Dr John A Sperry, Lansing, has returned after a service of several months with the American Red Cross in the war zone and is visiting in Jacksonville, Fla

Upper Peninsula Physicians Meet—At the annual meeting of the Upper Peninsula Medical Society, held in Houghton, August 16, Escanaba was selected as the next place of meeting and the following officers were elected president, Dr Robert Bennie, Sault Ste Marie, and vice presidents, Drs Robert A Walker, Menominee, and John MacRae, Calumet The secretary-treasurer will be chosen by the Delta County Medical Society

State Society Meeting—The Michigan State Medical Society held its fifty-first annual meeting at Houghton, August 15 to 17, under the presidency of Dr Alfred W Hornbogen, Marquette The following officers were elected president, Dr Andrew Porter Biddle, Detroit, vice presidents, Drs James G Turner, Houghton, John J Mersen, Holland, Arthur O Hart, St Johns, and George S Ney, Port Huron, delegates to the American Medical Association, Drs Jacob D Brook, Grandville and Guy L Connor, Detroit, and alternates, Drs Carl F Moll, Kenton, and Charles F Kuhn, Detroit The society adopted resolutions advocating universal military training and the passage of a law compelling all persons about to be married in the state to undergo physical examination, and providing drastic punishment for those who contract or assist in marriages in violation of the law The subject of the presidential address was "A Review of Medicine and Surgery, with Especial Reference to the European War"

NEW YORK

Hospital for Infantile Paralysis—At a recent meeting of the Hempstead Town Board of Health, Health Officer Dr Howard M Phipps was authorized to inspect and report on the suitability of the hospital connected with the town almshouse at East Hempstead for the reception of infantile paralysis patients

Inoculation of Milk Peddlers—At the meeting of the common council of Rochester, August 22, R A Hamilton, commissioner of public safety, on the recommendation of Health Officer Dr George W Goler requested the council to pass an ordinance requiring all persons peddling milk in the city to be inoculated against typhoid fever The communication was referred to the law and public safety committees

Special Course in Public Health—Eighteen health officers have already been enrolled to take a special course of study approved by the Public Health Council After a reading course of one month, a course of lectures and quizzes began, September 8, at the Medical College of Syracuse University This course will continue until November 25, when an examination will be held after which certificates will be issued to the successful candidates Another course will be given in the winter

Personal—Dr LeRoy B Vail, Flushing, is reported to be ill with anterior poliomyelitis and is said to be doing well——Dr Robert Lount, health officer of Hempstead suffered a cerebral hemorrhage August 26 and is reported to be in serious condition——Dr Edward E Hummel, Darien Center, coroner of Genesee County since 1901 announces that he will not be a candidate for reelection Dr William J Ryan Oakfield has announced his intention to be a candidate for the office

Infantile Paralysis in the State—There were forty cases of infantile paralysis reported to the state health department, September 1, with three deaths The total number fo
state thus far, exclusive of New York City, is 2,086
deaths, 227 The August *Bulletin* of the state d
health states that there were 336 cases re
month of July, up to the 29th These cas

130 municipalities, but for the most part in the counties adjoining New York City and along the Hudson River There are sixty-nine cases in patients who came from New York City a few days previous to the onset An analysis of 121 cases in which special data has been received shows that sixty-nine patients were males and fifty-two females About one half of the children were of American parentage Data respecting the sanitary conditions of the homes indicate that conditions were bad in thirty-five instances, fair in thirty, good in thirty, and excellent in twenty-four

New York City

Money for City Hospitals—Commissioner Kingsbury of the City Charities Department has announced the completion of the plans for new buildings and remodeling old buildings at the Seaview Hospital for Tuberculosis Patients on Staten Island and the Children's Hospital and schools for mentally defective children on Randall's Island For these purposes $1,400,000 has been appropriated by the board of estimates The new plans will double the capacity of the Seaview Hospital, so that it will accommodate 2,000 patients, and will consist of twenty-one open cottages, each containing forty-eight beds There will also be a group building for men, with a dispensary, large dining hall, industrial rooms, billiard and recreations rooms and a general lounging room

Mosquito Extermination Effective—It is reported that recently the health commissioner took a party of 100 newspaper men and civic workers over the marsh lands adjoining Jamaica Bay for the purpose of refuting certain newspaper stories that mosquitoes thrive and multiply under present methods of extermination The work that is being conducted was explained and it was made evident that the new crop of mosquitoes will be a failure The city appropriated $150,000 for this drainage work, $60,000 of which is to be expended along Jamaica Bay and the remainder along Flushing Bay Many Long Island towns have taken up the work of extermination Since the work on mosquitoes was begun in 1907, 23,000 acres of marsh have been drained, for which the city has paid $164,893 It is stated that when the work of the present season is completed the quantity of undrained marsh land in the vicinity of New York will be negligible

Infantile Paralysis—Up to September 2 there had been reported 8,148 cases of infantile paralysis in Greater New York, with 1,968 deaths September 1 there were sixty-eight new cases with seventeen deaths, and this number was slightly higher than for the preceding days of the week For the week ending July 8 there were 557 cases, while for the first six days of the current week there were 416 cases In the meantime the number of cases reported for one week mounted as high as 1,210 cases for the week ending August 12 This would indicate that the epidemic is very definitely on the decline. As a result quarantine regulations for those going out of the city have been somewhat relaxed——Special attention is now being directed to the aftercare of the victims of infantile paralysis With the termination of quarantine at home or with the discharge of a patient from the hospital, the following printed notification is given to the parents

> Your child is about to be discharged from the immediate care of the department of health, there being no longer any danger of his (or her) spreading the disease While in the hospital, much has been done to lessen the deformities There remain, however, weakness of
>
> With proper care, this deformity will be greatly lessened With neglect, it will tend to increase You are strongly advised to consult your family physician, if he is skilled in the care of deformities, or visit the nearest one of the orthopedic dispensaries in the city given on the enclosed list *In any case place your child under proper supervision for at least a year, as this tends to lessen permanent disability, neglect may increase deformity*

The brace fund of $25,000, asked for by the health commissioner, now totals about $23,000 Among the contributions of the last few days have been two checks of $1,000 from Edward S Harkness and Mrs Stephen V Harkness

NORTH CAROLINA

Inspection of Hotels—The inspection of hotels in the state by the state board of health began August 7 The inspectors assigned to this duty were Drs Watson S Rankin, George M Cooper and James R Gordon, all of Raleigh

Intensive Health Work—Dr E B Washburne, late director of the International Health Commission on duty at Trinidad, British West Indies, will, September 1, inaugurate and personally conduct for the ensuing year a scientific study of intensive health work in Wilson County, under the joint direction of the International Health Commission and the North Carolina State Board of Health

Antituberculosis Campaign—Dr James E Malone, Louisburg, health officer of Franklin County, has just closed a three months' antituberculosis campaign, lecturing to the people throughout the county, diagnosing cases and suggesting care and treatment as occasion offered

PENNSYLVANIA

Philadelphia

Personals—Dr Daniel J McCarthy, who has been in Europe as a representative of the United States government investigating prison camps, returned home, September 1——Dr Dudley J Morton, who for four months has been connected with the American Ambulance Hospital in Paris, returned home, September 2

Infantile Paralysis—No sign of abatement in the epidemic of infantile paralysis has been shown during the past week New cases have been reported every day excepting Thursday, and the largest number recorded excepting on one previous day was twenty-five Human serum is being used in the treatment of the disease at the Municipal Hospital, but no results have been given out The serum on hand in the Municipal Hospital has been practically exhausted and appeals have been made for persons who have recovered from the disease to supply blood to the health department. Twenty-five persons have thus far responded to this appeal During the last two days blood was taken from five immunes at the Orthopedic Hospital and on September 1, several immunes from a Philadelphia institution gave their blood while at a shore resort As stated before no definite report as to the value of the serum has been issued but the authorities are encouraged by the influence they have observed in the use of the immune serum The public schools throughout the city will not be opened before October 2, excepting the Girls' Normal School and the School of Pedagogy September 1, sixty-five additional men were added to the quarantine guard, and this has increased the number to 300 One hundred and twenty-five more are to be added to the roll, September 5 Since July 1, 850 cases of the disease have been reported to the state health department and 499 of these have occurred in the city of Philadelphia The total number of deaths since July 1 was 214 Seventeen new cases were reported from different sections of the state on September 1

CANADA

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> *Home of the Good Shepherd*, Peoria, and St Joseph's Home for the Aged, Peoria, each $5,000, St Francis Hospital, Peoria, $2,000, by the will of Archbishop Spaulding
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> For the construction of a children's building in connection with the Fayette County Tuberculosis Sanatorium, a donation of $10,000 by Miss Magdalen McDowell, Lexington, Ky, in memory of Dr William Adair McDowell

Confederation of County Societies to Meet—The newly organized Confederation of County Medical Societies of Northern Illinois and Southern Wisconsin associated with Eastern Iowa announces that its first annual convention will be held at Freeport, Ill, September 26 and 27 Clinics are to be held in the Freeport hospitals on the mornings of both days and in the afternoons and evenings scientific papers will be read and discussions held

Child Labor Bill Becomes a Law—The National Child Labor Bill became a law, September 1, when it was signed by the president It aims to limit child labor within the states by prohibiting the transportation in interstate or foreign commerce of any product of any mine, quarry, cannery, mill, workshop, factory, or manufacturing establishment in which child labor is employed A synopsis of the bill appeared in The Journal, August 19

Infantile Paralysis Conference—At a meeting of health officials of Rhode Island, Maine, New Hampshire and Massachusetts at the State House, Boston, August 23, a form of identification certificate in connection with infantile paralysis was decided on, and it was agreed that, for the convenience of travelers, the local boards of health should be instructed to issue certificates in due form, to persons who intend to go to states which require such certificates, provided a clean bill of health be obtained

Mississippi Valley Physicians to Meet.—The forty-second annual meeting of the Mississippi Valley Medical Association will be held in Indianapolis, October 10, 11 and 12, with headquarters at the Claypool Hotel, under the presidency of Dr Willard J Stone, Toledo, Ohio In addition to the usual papers of the meeting, there will be symposiums on fractures and on syphilis There will also be a scientific exhibit which has been arranged by Dr Frank B Wynn, Indianapolis Dr Albert E Sterne, Indianapolis, is chairman of the committee of arrangements

Health of Indians—Earnest efforts have been made to afford recently better hospital facilities for Indians, the number of such hospitals having been increased from 53 in 1912, with a capacity of 1,256, to 74 in 1915, with a capacity of 2,045 In view of the widespread prevalence of trachoma, and tuberculosis as reported by the investigation of the Public Health Service, ophthalmologists have been increased in number from 3 to 7, and the number of regular agency physicians increased from 89 to 130, and contract physicians from 53 to 76 The appropriation for relief of distress has been increased from $200,000 to $350,000, the amount covered by the present bill Seven traveling dentists have been employed A baby-saving campaign has also been instituted

Tuberculosis Conferences—The Mississippi Valley Conference on tuberculosis will be held at the Seelbach Hotel, Louisville, Ky, October 4 to 6, under the presidency of Walter D Thurber, Chicago The object of the conference is to bring about a closer relationship between antituberculosis agencies in the Mississippi Valley, to provide for the interchange of ideals and experiences, to strengthen and extend the work of the national association, to arouse the people of the Mississippi Valley to the needs of concerted action and to effect closer relations between the antituberculosis societies and other health agencies Dr Dunning S Wilson, Louisville, Ky, is secretary-treasurer of the conference—The third Southern conference on tuberculosis will be held at Jackson, Miss, October 30 and 31 The states comprised in this conference are North Carolina, South Carolina, Tennessee, Georgia Florida, Alabama, Mississippi and Louisiana

Measures Against Malaria—The International Health Board has taken up the consideration of the subject of malaria under the phases of geographic distribution and district of infection Two sets of experiments to test the practicability of malaria control are being carried out, one, the detection of the carriers and freeing them of the parasites, and the other a combination of control measures The first experiment is being carried out in Bolivar County, Miss, under the administration of the Mississippi Department of Health, with Dr Walter S Leathers, University, as administering director and Dr Charles C Bass, New Orleans as scientific director The field force and microscopists have received their technical training in the laboratory of Tulane University The second series of experiments is being carried out in Arkansas in cooperation with the United States Public Health Service, under the charge of Surg Rudolph H von Ezdorf

Tuberculosis Week—The National Association for the Study and Prevention of Tuberculosis announces that tuberculosis week will be observed from Dec 3 to 10, 1916 Especial attention is directed to three days in this week, namely, Medical Examination Day December 6, Children's Crusade Day December 8 and Tuberculosis Sunday, December 10 The National Medical Examination Day comprehends the securing of the interests of at least three distinct groups of individuals physicians, employers of labor and working men Physicians are urged to make examinations on this day without charge Efforts will be made to interest medical societies and labor unions in the work of this day and advertisements inserted in the newspapers The association also gives a list of the available literature for tuberculosis week, which includes a tuberculosis week circular, some talking points about tuberculosis, tuberculosis day prayer, talks for schoolchildren and circulars on the periodical medical examination and indifference to tuberculosis

American Chemical Society Meeting—The annual meeting of the American Chemical Society will be held in New York, September 25 to 30 One of the principal features of the occasion will be a symposium on occupational diseases presided over by Prof Charles Baskerville, head of the Department of Chemistry of the College of the City of New York This symposium will consider the chemical trades—prophylaxis in chemical industry diseases, incidental to work in anilin and other coal tar products, cedar lumber, mines and explosives The opening address of the meeting will be delivered by Dr Charles H Herty, the president, on "The History of Chemistry and the Chemical Industries of This Country and Outlining Developments Since the Outbreak of War in Europe" On Wednesday and Thursday mornings there will be a general symposium on colloids, theoretical considerations being discussed on the first day and the industrial applications of colloid chemistry on the second morning

Appropriations for Medical Department and Hospitals—In the act passed by the present Congress, which makes appropriations for sundry civil expenses for the fiscal year ending June 30, 1917, the following sums are appropriated

For furnishing artificial limbs and apparatus or commutation therefor, and necessary transportation $65 000

For furnishing surgical appliances to persons disabled in the military or naval services of the United States and not entitled to artificial limbs or trusses for the same disabilities $1 000

For trusses for persons entitled thereto $2 500

For the support and medical treatment of medical and surgical patients who are destitute in the city of Washington under a contract to be made with the Providence Hospital by the Surgeon General of the Army $19,000 of which one half shall be paid from revenues of the District of Columbia

For maintenance to enable it to provide medical and surgical treatment to persons unable to pay therefor under a contract to be made with the board of charities of the District of Columbia $19 000 of which one half shall be paid from the revenues of the District of Columbia

For necessary improvements repairs and equipment for isolation building for minor contagious diseases $5 500 of which one half shall be paid from the revenues of the District of Columbia

Hospital of the National Home for Disabled Volunteer Soldiers, Dayton Ohio $72 000 for pay services for care of the sick burial of the dead supplies and repairs

Hospital of Northwestern Branch Milwaukee $45 000 for same purposes

Hospital of Eastern Branch Togus Me $38 000 for same purposes

Hospital of Southern Branch, Hampton Va $43 000 for same purposes

Hospital of Western Branch Leavenworth Kan $52 000 for same purposes

Hospital of Pacific Branch, Santa Monica Calif, $53 000 for same purposes

Hospital of Marion (Ind) Branch $40 000 for same purposes

Hospital of Danville (Ill) Branch $42 000 for same purposes

Hospital of Mountain Branch Johnson City Tenn $35 000 for same purposes

Hospital of Battle Mountain Sanitarium Hot Springs S D $35 000 for same purposes

For the publication of bulletins prepared under the direction of the Surgeon General of the Army for the instruction of medical officers $3 000 or as much thereof as may be necessary

For sanitation quarantine hospitals and medical aid of the insane and of lepers and aid and support of indigent persons legally within the Canal Zone including expenses of their deportation when practicable $700 000

FOREIGN

Letter from Berlin—V Scheel is editor of the *Ugeskrift for Læger* at Copenhagen and he recently went to Berlin with four other Danish civilian and military physicians to study the methods in vogue there for treating the wounded and mitigating the ills of all kinds which the war has brought We give a literal translation of a letter from him in the *Ugeskrift* for August 3 as follows

CHANGES IN THE CITY

'Those who visit Berlin these days find the city changed in several respects The lack of rubber has limited the number of automobiles and bicycles on the streets to the minimum, and the decrepit nags in the cabs shows that the war has taken all the capable horses The absence of the male population is noticeable by the extent to which women are serving in men's positions as conductors, as motormen on the electric tramways, as letter carriers, street sweepers and even in heavy paving work

130 municipalities, but for the most part in the counties adjoining New York City and along the Hudson River There are sixty-nine cases in patients who came from New York City a few days previous to the onset An analysis of 121 cases in which special data has been received shows that sixty-nine patients were males and fifty-two females About one half of the children were of American parentage Data respecting the sanitary conditions of the homes indicate that conditions were bad in thirty-five instances, fair in thirty, good in thirty, and excellent in twenty-four

New York City

Money for City Hospitals—Commissioner Kingsbury of the City Charities Department has announced the completion of the plans for new buildings and remodeling old buildings at the Seaview Hospital for Tuberculosis Patients on Staten Island and the Children's Hospital and schools for mentally defective children on Randall's Island For these purposes $1,400,000 has been appropriated by the board of estimates The new plans will double the capacity of the Seaview Hospital, so that it will accommodate 2,000 patients, and will consist of twenty-one open cottages, each containing forty-eight beds There will also be a group building for men, with a dispensary, large dining hall, industrial rooms, billiard and recreations rooms and a general lounging room

Mosquito Extermination Effective—It is reported that recently the health commissioner took a party of 100 newspaper men and civic workers over the marsh lands adjoining Jamaica Bay for the purpose of refuting certain newspaper stories that mosquitoes thrive and multiply under present methods of extermination The work that is being conducted was explained and it was made evident that the new crop of mosquitoes will be a failure The city appropriated $150,000 for this drainage work, $60,000 of which is to be expended along Jamaica Bay and the remainder along Flushing Bay Many Long Island towns have taken up the work of extermination Since the work on mosquitoes was begun in 1907, 23,000 acres of marsh have been drained, for which the city has paid $164,893 It is stated that when the work of the present season is completed the quantity of undrained marsh land in the vicinity of New York will be negligible

Infantile Paralysis—Up to September 2 there had been reported 8,148 cases of infantile paralysis in Greater New York, with 1,968 deaths September 1 there were sixty-eight new cases with seventeen deaths, and this number was slightly higher than for the preceding days of the week For the week ending July 8 there were 557 cases, while for the first six days of the current week there were 416 cases In the meantime the number of cases reported for one week mounted as high as 1,210 cases for the week ending August 12 This would indicate that the epidemic is very definitely on the decline As a result quarantine regulations for those going out of the city have been somewhat relaxed——Special attention is now being directed to the aftercare of the victims of infantile paralysis With the termination of quarantine at home or with the discharge of a patient from the hospital, the following printed notification is given to the parents

> Your child is about to be discharged from the immediate care of the department of health, there being no longer any danger of his (or her) spreading the disease While in the hospital, much has been done to lessen the deformities There remain, however, weakness of
>
> With proper care, this deformity will be greatly lessened With neglect, it will tend to increase You are strongly advised to consult your family physician, if he is skilled in the care of deformities, or visit the nearest one of the orthopedic dispensaries in the city given on the enclosed list *In any case place your child under proper supervision for at least a year, as this tends to lessen permanent disability neglect may increase deformity*

The brace fund of $25,000, asked for by the health commissioner, now totals about $23,000 Among the contributions of the last few days have been two checks of $1,000 from Edward S Harkness and Mrs Stephen V Harkness

NORTH CAROLINA

Inspection of Hotels—The inspection of hotels in the state by the state board of health began August 7 The inspectors assigned to this duty were Drs Watson S Rankin, George M Cooper and James R Gordon, all of Raleigh

Intensive Health Work—Dr E B Washburne, late director of the International Health Commission on duty at Trinidad, British West Indies, will, September 1, inaugurate and personally conduct for the ensuing year a scientific study of intensive health work in Wilson County, under the joint direction of the International Health Commission and the North Carolina State Board of Health

Antituberculosis Campaign—Dr James E Malone, Louisburg, health officer of Franklin County, has just closed a three months' antituberculosis campaign, lecturing to the people throughout the county, diagnosing cases and suggesting care and treatment as occasion offered

PENNSYLVANIA

Philadelphia

Personals—Dr Daniel J McCarthy, who has been in Europe as a representative of the United States government investigating prison camps, returned home, September 1——Dr Dudley J Morton, who for four months has been connected with the American Ambulance Hospital in Paris, returned home, September 2

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Confederation of County Societies to Meet—The newly organized Confederation of County Medical Societies of Northern Illinois and Southern Wisconsin associated with Eastern Iowa announces that its first annual convention will separated into districts, each with quarters for 1,000 men These districts are enclosed in a barbed wire fence, so that if epidemic disease breaks out in one district it can be isolated by merely stationing a guard at the single gate The food supply is in the hands of the military authorities here as elsewhere, unpleasant experiences having shown the folly of farming it out to private parties The food rations are calculated according to the calories—2,500 calories a day, this is a little scanty, but scarcely scantier than most of the Germans just at present are living on, and judging from the people's aspect the nourishment was sufficient The quality of the food seems to be stamped somewhat with the scarcity of foodstuffs, but of course we cannot set up our palates as judges of taste here Among the prisoners were some Russian physicians who treated the sick in a special barracks fitted up as a hospital, although with Spartan simplicity, they were not very happy in their monotonous existence and had but one wish to be exchanged"

CONQUERING TYPHUS

In conclusion Scheel describes the way in which typhus has been conquered as one of the most interesting sections of the medical side of the war He says "Although it has always been endemic in Russia and yearly claims not a few victims, no one had ever had a clear idea as to how it was transmitted and how it could be combated The French bacteriologist Nicolle suggested that it might be transmitted by the louse, but no serious attempts were made to confirm the soundness of this hypothesis or apply its consequences in practice When the disease invaded Germany, important research on it was undertaken at once The conclusion was soon drawn that body lice were probably responsible for the transmission, and organized efforts to 'unlouse' the men were at once undertaken From the moment when it became possible to obtain the mastery over lice, the disease was rooted out of Germany, single cases may be imported as the incubation period is fourteen days, but when no lice are to be found the disease cannot spread A typhus patient can sleep with other patients without infecting them Every soldier is unloused,' before he is allowed to leave the front, and in every railroad station in Germany there stands a reservist soldier and he demands from every military person—generals as well as privates—who comes from the front, to produce his *Entlausungsschein*, his card certifying that he has been unloused', before he is allowed to leave the depot In the prisoners' camp the unlousing was done with very simple means The lice are killed with steam *and dry heat* applied in a wooden building lined throughout with roofing pasteboard The steam is developed in a locomotive which is run close to the barracks The men enter a room and deposit their watch and other valuables in a locker in the outer wall The clothing is marked with a number and *hung up on* a hook and carried into the sterilizing room where it hangs in rows as in a wardrobe A tube brings the steam from the locomotive It enters with a force of *twelve atmospheres*, a wooden screen preventing the steam from blowing the clothing off the hooks Maximal thermometers are suspended among the clothes and a thermometer and manometer are arranged so they can be read from outside In the course of *half an* hour the temperature in the room is brought to 110 C, which is more than enough to kill lice Leather goods are sterilized
dry heat in another room heated by the steam sent
In the meanwhile the men have passed into
and beard are cut, the hair on the
They pass then into the room
nd douches and the men are
then pass into another room,
the sterilizing room, and their
vell dried after the sterilization
lishment, getting their valuables
m outside the building A thou-
loused' in an hour s time *That*
teria are killed at the same time
acks themselves can also be disin-
om the locomotive at any time,
does not kill lice

DICAL RESEARCH

ission and prophylaxis of typhus are
ubject for scientific research during the
inity to see a collection of pathologic-
which have been collected mostly by
are exhibited in the Kaiser-*Wilhelms*
The future will not lack material to
projectiles from modern weapons, there are also on exhibition lungs showing the lesions from asphyxiating gases It is too early to draw up the balance sheet of the war, at the moment the evil predominates, but as many technical improvements which will prove of importance in the days of peace have resulted from the demand which the war has entailed, so will medicine in different fields experience new impulses and new life from the war, and indirectly it will thus have an important influence on the general progress of civilization"

LONDON LETTER

LONDON, July 19, 1916

The War

THE ARMY MEDICAL SERVICE

Nearly half of the civilian physicians have now abandoned their ordinary work for military service, and yet the medical work of the country goes on apparently smoothly and efficiently, though with some difficulty Various readjustments have, of course, been made Physicians retired from practice but not too old for work have come back Women physicians have been made use of in increasing numbers Refugee Belgian physicians are employed in general practice and in institutions, and American physicians have been employed in the hospitals both at home and in France The whole British medical profession, from the consultants to the general practitioners, readily responded to the call of their country, and many of the former, who were earning large incomes, are now wearing khaki for pay which hardly covers the rent and taxes on their houses Public bodies and wealthy persons with large houses have freely given up buildings for the treatment of the wounded The result is that military hospitals, large and small, have sprung up in every direction In London at present there are *no fewer than 186* Of these, thirty-nine, which are the largest, are army hospitals proper, the rest consist of private buildings and local institutions, all of course under the control of the war office The immense number of wounded has enabled specialism to be organized on an unusual scale Thus one hospital is devoted to injuries of the jaw Conservative surgery is the order of the day, amputations are avoided as much as possible At the Herbert Hospital, out of over 3,000 operations, only twenty-five have been primary amputations Following the example set by our ally in the treatment of those crippled by wounds, at the Grand Palais in Paris, attention is being directed to physical therapy Electricity, hydrotherapy, radiant heat, massage, passive exercises, mechano-therapy, progressive physical training are all being employed For men who have lost a limb or other portion of the body there is a special hospital at Roehampton where the latest developments of prosthesis are placed at their service There are actually both British and American firms on the spot engaged in the manufacture of artificial limbs Another hospital is devoted to prosthesis for the ghastly disfigurements of the face which so often are produced by high explosives The work is done under the supervision of a famous sculptor, Mr Francis Derwent Wood Metal masks are largely used, together with artificial eyes The masks are of copper silvered over, made to correspond exactly with the injury, and then tinted a flesh color The designer derives great assistance from a photograph of the injured man taken before he was wounded In one case a man had lost an eye, in the place of which there was a deep cavity, his nose was gone and his upper lip disfigured A mask was made to resemble the missing part as shown by an old photograph, an artificial eye was obtained that exactly resembled the other eye, and an artificial mustache was attached to the part of the mask that represented the upper lip So successful was the result that at the distance of an ordinary sitting room the substitution was not perceptible Only on close inspection could the dividing line between the skin and the mask be seen The mask is fixed either by specially constructed spectacles or by spirit gum The latter is somewhat irritating, and therefore is used only to fix small metal plates to conceal minor cavities

SPHAGNUM MOSS AS A SURGICAL DRESSING

The immense demands of the war for surgical dressings have rendered gauze and cotton wool expensive and difficult to obtain and have directed attention to sphagnum moss which grows abundantly in several parts of the country It is inexpensive and makes a most satisfactory dressing Sir Alexander Ogston, professor of surgery in the University of Aberdeen, who is an advocate of this dressing estimates that in the next eight months of the war some thirty millions of combatants will be exposed to the risk of accidents, disease and wounds On the basis of the statistics of previous wars he concludes that 20 per cent of the wounded will be killed and 80 per cent require surgical attention, and that both categories will amount to from 12 to 15 per cent of the men engaged Applying these figures, he takes it that of the thirty millions engaged, fifteen will be in the firing line, and of the latter a minimum of 10 per cent will be wounded and need surgical assistance Considering the vast quantity of dressings required, he thinks that the common sphagnum moss will fulfil all requirements It is soft and pliable, and grows in inexhaustible abundance It was first employed in the Franco-Prussian War of 1870, but disappeared from use as other materials were easily obtainable It can easily be sterilized or impregnated with a disinfectant

Precautions Against the Spread of Infantile Paralysis

The severe epidemic of infantile paralysis in New York has attracted considerable attention in this country, and our health authorities are giving anxious consideration to the prevention of the spread of the disease to this country The medical correspondent of the *Times* has suggested that quarantine regulations should be enforced on passengers from New York and other infected areas, and that thorough disinfection be carried out in all cases of the least doubt The local government board, however, regards quarantine as obsolete and useless in the case of any acute infectious disease, and considers that attempts to enforce it in the case of poliomyelitis would be impracticable if not actually mischievous Every possible precaution is being taken to prevent the disease spreading to this country The board receives notification every day of the sporadic cases which occur in this country So far the numbers are not exceptional During the present year the cases may be reckoned as isolated units in the country as a whole, but thirty-nine cases have occurred in the city of Aberdeen

Bubonic Plague at Bristol

Three cases of bubonic plague have occurred at Bristol, but the patients are progressing favorably As no fresh cases have been reported for eleven days, the position is regarded as favorable, the period of incubation being from five to seven days Careful precautions have been taken for dealing with material liable to prove dangerous and for dealing with rats One rat which was caught had the disease, and it seems probable that the three cases arose from it

PARIS LETTER

Paris, Aug 10, 1916

The War

CARDIAC FATIGUE IN SOLDIERS

Although the more serious results of overtaxed heart are exceptional in the present phase of the war, it is by no means rare to find less grave cardiac troubles resulting from fatigue Dr Lian has made a report on this subject to the Reunion medicale de la IV-e Armee This report deals with the conditions found in soldiers who complain of palpitation, dyspnea and precordial pain and oppression while on the march fully accoutered or during gymnastic running exercises or during digging Unless they stop for a few moments every now and then in the course of hard work, they are apt to suffer from a sudden sensation of weakness with vertigo The result of physical examination is almost or entirely negative when practiced on the patient lying down, but on change being made to a standing posture, there occurs an immediate acceleration of the pulse to 100 or 120 beats per minute Under the effect of the slightest effort, the heart beat raises to 140, returning eventually to the original rate, but much more slowly than in a healthy subject Sometimes a few extrasystoles occur, when the effort of the dyspnea is more marked than usual These observations correspond to those which have been made on British and American soldiers in the condition which has received the name of "soldier's irritable heart" They may be the result of overwork in a heart suffering from latent myocarditis consecutive to some infectious disease or, in common with the rest of the organism, affected by general depression as the result of a toxinfection, but the irritable heart of the soldier may also be the result of true cardiac fatigue In these last cases, it will be found that the patients, since their childhood, experienced difficulty in keeping up with their comrades in playing and running It is easy to understand that in subjects predisposed by constitutional circulatory debility, cardiac fatigue may easily be produced as a result of the violent efforts, of the emotions and commotions caused by the state of war Dr Lian recommends rest and the administration of strychnin After several days in bed, the patients may be allowed to get up and help the staff of the ambulance It is not desirable to prolong absolute rest too much, for these patients have only too much tendency to allow their cardiac troubles to dominate them, as Mackenzie used to say After several weeks in the ambulance, they can as a rule rejoin their corps, but it is generally necessary to note them for exemption from the harder physical work

THE EXTRACTION OF INTRACEREBRAL FOREIGN BODIES

At the same meeting, Dr Tanton read a note on extraction of intracerebral foreign bodies The presence of projectiles in the brain does not count in the immediate prognosis, as far as life is concerned On the other hand, it is a point of capital importance in the genesis of septic complications, early, secondary or late Heretofore, it has been the practice to limit the disinfection of penetrating wounds of the brain to the orifice and the first centimeter or two of the track, abandoning systematically any attempt to search for the foreign body The practice, however, has been tending for some time toward a more complete primitive operation with extraction of projectiles The removal of intracerebral foreign bodies should be systematic and immediate, with the two conditions, nevertheless, that it shall be materially possible, and that it shall not itself add a new element of gravity to the condition of the patient This last restriction applies particularly to foreign bodies of small volume, in size below that of a lentil In these cases, primitive tolerance is the rule, and definitive tolerance is a probability Extraction should be performed to avoid septic accidents Moreover, the utilization by the forceps of the track already dug in the cerebral substance by the projectile avoids the necessity of further disorganization of the cerebral substance Secondary extraction is reserved for cases in which certain clinical indications give rise to fear of septic accidents Late extraction is almost invariably a side issue of an intervention whose main object is the evacuation and drainage of an intracerebral abscess Local or regional anesthesia is essential Before operating, unless the condition of the wound shows clearly that one has to deal with a tangential track, one should examine the patient by roentgenoscopy to determine whether or not there exists a foreign body The operation is divided into two parts, but it must be completed at one sitting The first stage consists of the disinfection of the cranial wound The second includes the extraction of the foreign body with the aid of the screen The manipulations for the extraction of foreign bodies are by no means always easy or innocuous After contact has been established with the bullet by means of the forceps, it will sometimes be impossible to seize it For these reasons, the use of the electromagnet controlled by screen observations is to be preferred, as it suppresses the delicate operation of seizing the projectile, and shortens the manipulations Drainage of the intracerebral cavity is in all cases indispensable

INJECTION OF EPINEPHRIN FOR COLLAPSE AFTER ANTITYPHOID AND ANTIPARATYPHOID VACCINATION

Dr Lian has reported to the Reunion medicale de la IV-e Armee two accidents resulting from mixed antityphoid and antiparatyphoid vaccination There was a general syndrome of an acute suprarenal insufficiency, namely, fever, headache, vomiting, profound depression, vertigo, faintness, very low arterial pressure, the "white line" of Sergent, and in the graver one, hiccup, epigastric and lumbar pain, oliguria and albuminuria These troubles disappeared in four days in one patient, and in twelve in another Although the appearance of this intolerance is difficult to explain in these two patients (there being no contraindication and no marked reaction in other subjects treated with the same vaccine), the clinical character of these manifestations is not surprising It is a rule to see typhoid and paratyphoid infection accompanied by profound depression and very marked arterial hypotension One can, therefore, understand that in case of intolerance of injection of sterilized cultures of typhoid and paratyphoid bacilli, there should occur a syndrome of acute suprarenal insufficiency For these reasons, Lian is inclined to believe that in this exceptional reaction of intolerance to typhoid and antityphoid vaccines, there is a great fall of arterial pressure, and he recommends in such cases, if the pulse is small and easily obliterated, the subcutaneous injection of epinephrin chlorid solution (from two to four injections of 0 5 mg in twenty-four hours) It is to be hoped that this treatment will give as good results in such cases as in the analogous but more serious and more frequent accidents accompanying the intravenous injection of salvarsan and neosalvarsan

Dr Levy stated that he had observed in a man, aged 35, as the result of an injection of antiparatyphoid vaccine, threatening collapse, a temperature of 40 2 C (104 4 F) pulse uncountable and cyanosis of the extremities In this case, the administration of epinephrin gave the happiest results Nevertheless, Dr Levy is of the opinion that to attribute these symptoms entirely to suprarenal insufficiency is going a little too far

HEMERALOPIA

The frequence of hemeralopia, extremely low in time of peace (1 in 12,000 in France, according to Walter), undergoes an augmentation in wartime At Verdun Dr Bourdier found 8 78 per cent in ocular examinations during the winter of 1914-1915 At the same period there occurred in the German army a grave epidemic of this condition More recently, Vejers has observed it in proportion of 10.2 per cent This high figure depends on many causes, some peculiar to the present war, which presents conditions different from those which have prevailed, in the past, such, for example, as the higher mean age of the combatants The hemeralopia in the present war differs from those which have been described in previous wars in two respects In the first place, there has been no epidemic, and, the revictualing of the army being satisfactory, there have been no crises of hemeralopia due to privation and physiologic misery By reason of selection, symptomatic hemeralopia is rarely found more in military than in civil life In most cases it seems related to some vice of refraction and principally to myopia The condition has been observed among volunteers in the early months of the war, among officers of the regular army and medical officers, and because of these facts and others contained in the reports of the commanding officers and because of the isolated character of each case, it is evident that, in the present war, hemeralopia is a symptom rarely invoked by malingerers Except for those cases traceable to general diseases (of liver and kidneys) or to ocular fatigue or disease, there seems to be no satisfactory treatment for the condition

With regard to military employment of patients suffering from hemeralopia, the requirements of the command must be taken into consideration, and it is necessary to point out to commanding officers, whose complaints have been occasionally rather pointed that the condition appears to be scarcely if at all curable, that those affected by it should be distributed at the front among the day working parties In examining men for their aptitude for different special services the experience of the present war has shown that in the future it will be necessary to control not only the visual acuity and the visual field but also the power of adaptation to varying degrees of illumination This is especially true of candidates for the posts of aviator and automobilist Ametropia constitutes an inferiority not only because of the loss of visual acuity but also because of the hemeralopia which accompanies it ['Hemeralopia" means, strictly day-blindness but is also used for night-blindness more usually termed nyctalopia" Our correspondent seems to be using it in the latter sense—Ed]

THE WAR AND COLD STORAGE MEAT

On all sides a very marked movement has shown itself in favor of the importation of cold storage meat Recently, the Conseil general du departement de la Seine voted an annual subsidy of 100 000 francs ($19,300) toward the organization of the sale of cold storage meat by the cooperatives An important question which has been raised is that of the lowering of the price at the port of delivery It is well known that the great demands of the allied armies have caused a very considerable rise in the price of meat This increase is particularly felt in France because these prices are quoted in sterling, and therefore we have to bear the loss on exchange It is true that our colonies, Senegal and Madagascar, are already contributing to the revictualing of France in meat but the quantities imported from these colonies are very small as compared with those which we receive from South America and especially from Uruguay This is owing to the fact that the frigorific industry was in its infancy in this country at the moment of the outbreak of the war but it is also due to the insufficiency of the means of transportation between our colonies and France For more than a year the government and Parliament have been studying the means of endowing France with a frigorific fleet to facilitate the importation of chilled meat The problem has been solved in a very satisfactory manner as regards transportation between South America and France The French navigation companies, as the result of long negotiations, have decided to establish a line of ships for this purpose with a total capacity of about 80 000 tons

The Treatment of Wounds by Sugar

At one of the recent sittings of the Societé de pathologie comparee, Dr Lhoste drew attention to the fact that he had on several occasions availed himself, in veterinary surgery, of the cicatrizing properties of sugar by powdering the wounds with this substance after washing them with salt water In a few days, the wound takes on a healthy appearance and heals rapidly Dr Grollet expressed the hope that this method of treatment would be tried in human surgery, in which it might hold its place in the treatment of septic wounds It should be noted that the antiseptic properties of sugar have been long known, and in popular medicine this substance has always been considered to possess cicatrizing properties At one time sugar alone or associated with naphthalene or iodoform was recommended as an antiseptic Three years ago, Dr G Magnus of Marburg, as the result of experiments made in the service of Professor Koenig, recommended sugar as a practical and inexpensive dressing for wounds

New Treatment for Chancroid

Dr Goubeau has worked out a method of treatment for chancroid, based on the Czerny method, of which the following is the technic The surface of each chancroid is cleaned by means of swabs of cotton soaked in ether, all traces of pus being removed The clean surface of each chancroid is then swabbed with the following solution (with a small brush or with a rod around which a cotton swab is wrapped)

Sodium arsenate	1 gm
Alcohol, 95°	50 gm

The alcohol is evaorated by a current of air, leaving a fine film of sodium arsenate deposited on the surface and in the cavities of the chancroid One chancroid is now swabbed a second time, the alcohol evaporated, and the chancroid dressed with aseptic gauze This swabbing is repeated every day It is rarely necessary to continue the treatment over more than three or four days At the end of this time the chancroid is transformed into a small healthy red wound with a tendency to rapidly cicatrize At this stage, one practices every day sponging with ether followed by dusting with iodoform This method gives far more rapid results than any other Healing is generally complete at the end of eight or ten days When a bubo develops, Goubeau injects into the gland 1 c c of a 1 per cent aqueous solution of sodium arsenate This should be repeated, if necessary, every two days If pus has already formed, it should be evacuated by a small trochar, and the solution of sodium arsenate injected immediately afterward The cure of the bubo is obtained with great rapidity

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Marriages

Ralston Irving Lewis, M D, Glen Ellyn, Ill to Miss Virginia Folkes, at Western Springs, Ill, about August 30

Cloyd Franks Warton, M D, Akron, Ohio, to Miss Florence Elizabeth Mitchell of Ashland Ohio, August 23

Grover Francis Powers M D Baltimore, to Miss Beatrice Farnsworth of South Lincoln, Mass, August 21

Arthur N Foster, M D, Dorchester, Boston, to Miss Amy M Wentworth of Brookline Mass August 15

Jacob Henry Matthai, M D, Newberry, Mich, to Miss Emma Direxa Purcell of Chicago, August 9

Alexander Aaron Goldsmith, M D, to Miss Corinne Rosenfeld, both of Chicago, September 5

Frank A Anderson, M D, Austin, Chicago, to Miss Florence Steiner of Chicago August 19

Leo Williams Bortree, M D, to Miss Nellie Cheley, both of Colorado Springs Colo August 22

John Thomas Sample, M D to Miss Gladys M Humphrey, both of Saginaw, Mich, August 8

Richard Asbery Walker, M D, to Miss Gertrude Hemstead both of St Louis, recently

Deaths

Ernest Watson Cushing, M D, Boston, College of Physicians and Surgeons in the City of New York, 1871, aged 69, formerly a Fellow of the American Medical Association, a member of the Massachusetts Medical Society, and American Gynecological Society, professor of abdominal surgery and gynecology in Tufts Medical School, Boston, from 1895 to 1913, and thereafter emeritus professor, editor of the *Annals of Gynecology and Pediatry* from 1887 to 1903, a member of the board of directors of the Robert Bent Brigham Hospital, Boston, a founder of and for more than twenty years surgeon to the Massachusetts Women's Hospital, founder of the Cushing Hospital, Roxbury, Boston, died in that institution, August 27

Wilbur Boileau Marple, M D, New York, Starling Medical College, Columbus, Ohio, 1881, aged 60, a Fellow of the American Medical Association, American Ophthalmological Society and New York Academy of Medicine, and a member of the American Therapeutic Association, ophthalmic surgeon of the New York Eye and Ear Infirmary, visiting ophthalmic surgeon to the Almshouse and Workhouse hospitals, Blackwell's Island, and consulting ophthalmic surgeon to the Babies' Hospital, New York, one of the best known ophthalmologists of the United States, died suddenly on the golf links at Kennebunkport, Me, August 30, from cerebral hemorrhage

Edgar J Spratling, M D, Atlanta, Ga, College of Physicians and Surgeons, Baltimore, 1891, a member of the Medical Association of Georgia, a member of the staff of the State Hospital for Epileptics, Palmer, Mass, from 1898 to 1900, and of the staff of the Matteawan State Hospital, Matteawan, N Y, from 1904 to 1908, medical director of the Empire Life Insurance Company, Atlanta, captain of "F" Company, Fifth Infantry, Georgia N G, was shot and killed by a woman at the state mobilization camp, Macon, Ga, August 25

Gabriel Archibald Elston, M D, Corry, Pa, New York University, New York City, 1880, aged 63, a member of the *Medical Society of the State of Pennsylvania, and formerly* president of the Erie County Medical Society, local surgeon of the Pennsylvania System, surgeon of the Corry Hospital, for several years a member of the local board of education, while hurrying to make a professional call, died at the Corry Station, from cerebral hemorrhage

Morris J Alexander, M D, Tunica, Miss, Louisville, Ky, Medical College, 1881, a Fellow of the American Medical Association, formerly president of the Clarksdale and Six Counties Medical Society, and a member of the Mississippi State Board of Health, died at his home, August 20, from the effects of a gunshot wound, self inflicted, it is believed, with suicidal intent while despondent on account of ill health

William Henry Baker, M D, Lynn, Mass, Hahnemann Medical College, Philadelphia, 1880, aged 72, a veteran of the Civil War, in which he served both in the army and navy, a trustee of the State Colony for the Insane, Gardner, and of the Eliza Hahn Home for Aged Couples, Lynn, formerly surgeon-general of the Department of Massachusetts G A R, died at his home, August 22

Raymond W Smith, M D, Springvalley, O, Louisville (Ky) Medical College, 1893, aged 53, formerly a Fellow of the American Medical Association, while returning from an automobile trip through Vermont, jumped from his car near Newark, August 18, sustaining a fracture of the base of the skull, from which he died an hour later at the Newark City Hospital

Ezra Bradway Sharp, M D, Camden and Pitman Grove, N J, University of Maryland, Baltimore, 1888, aged 55, formerly a member of the Medical Society of New Jersey, formerly an instructor at the Polyclinic Hospital, Philadelphia, who recently underwent operation at a hospital in Philadelphia, died at the home of his sister, in Camden, August 24

George F Clark, M D, Winchester, Ky, Medical College of Ohio, Cincinnati, 1895, aged 47, a specialist on diseases of the eye, ear, nose and throat, formerly a Fellow of the American Medical Association, and a member of the Kentucky State Medical Association, died at his home, August 20, from carcinoma of the throat

John A Mitchell, M D, Newark, Ohio, Homeopathic Hospital College, Cleveland, 1880, aged 63, a Fellow of the American Medical Association, one of the founders of the Newark City Hospital, and a prominent practitioner of Newark, died suddenly at the Triton Club, fifty miles north of Quebec, August 19

Charles M Stoute, M D, Middletown, Ind, Physio-Medical College of Indiana, Indianapolis, 1891, aged 52, a member of the Indiana State Medical Association, Past Grand Sacham of the Improved Order of Red Men, was instantly killed by the overturning of his automobile, near Emporium, Ind, August 21

Nevin Heckart Wireback, M D, Pittsburgh, Memphis Hospital Medical College, Memphis, Tenn, 1906, a member of the State Medical Association of Texas, and for several years a practitioner of Wharton and Iago, Texas, died at his home, August 20, from nephritis

Ernest B C Hanington, M D, Victoria, B C, McGill University, Montreal, 1875, aged 65, local surgeon for the Canadian Pacific System from 1880 to 1885, once president of the Medical Council of British Columbia, died at his home, May 11, from heart disease

Willis Gilbert Eaton, M D, Lowell Mass, Harvard Medical School, 1879, aged 62, formerly a Fellow of the American Medical Association, a member of the Massachusetts Medical Society, died at his home, June 26, from coronary sclerosis

Edward L Eastbrook, M D, Minneapolis, Minn, aged 70, Long Island College Hospital, Brooklyn, 1878, a midshipman in the navy and a lieutenant in the army during the Civil War, died in the Corey Hill Hospital, Brookline, Mass, August 20

William Francis Waldron, M D, Brooklyn, New York University, New York, 1898, aged 44, formerly a member of the Medical Society of the State of New York, died at his home in Greenpoint section of Brooklyn, August 24, from nephritis

John P Gilligan, M D, Wilkes Barre, Pa, Medico-Chirurgical College of Pennsylvania, Philadelphia, 1899, aged 44, a specialist on diseases of the eye, ear, nose and throat, died in Mercy Hospital, Wilkes Barre, August 11

J W Knox, M D, Lewisport, Ky, Louisville, Ky, Medical College, 1876, aged 59, a member of the Kentucky State Medical Association, a member of the Kentucky Legislature in 1903, died at his home, May 31, from mastoiditis

Thomas Powell, M D, Los Angeles, New York Medical College, New York, 1858, aged 78, founder, president and medical director of the Powell Sanatorium, and author of many monographs, died at his home, August 16

John Selby Pierce, M D, Red Key, Ind., Curtis Physio-Medical Institute, Marion, Ind, 1894, aged 52, president of the bank of Red Key, died in St Vincent's Hospital, Indianapolis, August 16, after a surgical operation

John D Burch, M D, Louisville, Kentucky School of Medicine, Louisville, 1876, aged 64, for many years a practitioner of Mead County, Ky, died at the home of his daughter, in Louisville, August 12

Edward E Flagg, Mooreland, Okla, (license, Oklahoma, 1908), aged 42, a practitioner since 1904, was instantly killed by the overturning of his automobile, thirty-five miles north of Mooreland, August 17

William W McDonald, M D, Sayre, Okla, University of Alabama, Mobile, 1889, aged 49, a member of the Oklahoma State Medical Association, died at his home, May 16, from glandular fever

Augustus Assenheimer, M D, New York, New York University, New York, 1868, aged 68, a member of the Medical Society of the State of New York, died at Far Rockaway, N Y, August 24

Stacey Watkins Boyle, M D, Middlebury, Vt, New York Homeopathic Medical College, New York City, 1908, aged 30, died suddenly in Colon, C Z, August 21

George B Wilmuth, M D, Springdale, Ohio, Eclectic Medical Institute, Cincinnati, 1864, aged 85, died at his home, June 12, from cerebral hemorrhage

Edward Balch Knight, M D, Providence, R I, Harvard Medical School, 1867, aged 72, died at his home, May 8, from valvular disease of the heart

Zacharias Worth Neil, M D, Verona, Tenn, University of Nashville, Tenn, 1872, aged 68, died at his home, August 4, from heart disease

J S Hill, Greensville, Tex (license, years of practice, Texas), aged 62, died at his home, May 21, from nephritis

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

DR MILES' RESTORATIVE NERVINE

According to the trade package, "Dr Miles' Restorative Nervine"

> 'Is Recommended for the Following Ailments Epilepsy, Hysteria and St Vitus s Dance Nervousness, Sleeplessness Neuralgia Nervous Dyspepsia and Nervous Prostration Headache, Backache, and Palpitation of the Heart due to functional or Nervous Disturbances This Remedy is also useful as an aid to other treatment for Tobacco and Alcoholic Excess the Opium and Morphin Habits'

The "Nervine" is but one of several "patent medicines" put out by the Miles Medical Co of Elkhart, Ind As is usual in such cases the advertising of each nostrum is used as a supplemental means of exploiting the remainder of the group For instance, in the treatment of "Backache" we are told that "few remedies have a more beneficial effect in this disorder than the Restorative Nervine" However, if the pain is severe, the sufferer is urged to take, in addition, "Dr Miles' Anti-Pain Pills" (an acetanilid mixture) and it is further suggested that "Dr Miles' Liver Pills" will render the "treatment" still more effective In chorea the "Nervine" is recommended, together with "Dr Miles' Restorative Tonic" to enrich the blood" and "Dr Miles' Liver Pills' to be taken 'as needed" For drunkenness and delirium tremens "give large doses of Restorative Nervine" followed by the use of "Dr Miles' Liver Pills ' Those who desire to overcome the alcohol habit are urged to take from six to nine teaspoonfuls daily of the "Restorative Nervine" and the same quantity of "Restorative Tonic," while for any pain 'use Dr Miles' Anti-Pain Pills '

Sufferers from epilepsy are told that "few remedies are more beneficial in the treatment of this disease than the Restorative Nervine" Should the patient not improve as rapidly as expected the company urges that the case should be reported to it and its specialist will give advice free of charge as to the best treatment in such exceptional cases" One is led to believe also that the morphin habit may be cured by the combined use of the "Restorative Nervine," 'Restorative Tonic,' 'Dr Miles' Liver Pills" and "Dr Miles' Anti-Pain Pills If not benefited in a month write for advice ' For rheumatism purchase a bottle of "Nervine" to which 'add 1 ounce of salicylate of soda' , should the case prove obstinate add, in addition, 4 drams wine of colchicum,' using of course, 'Dr Miles Liver Pills and the "Anti-Pain Pills"

The public is told that it must not infer—as it might possibly do—that Dr Miles Restorative Remedies" are 'cure-alls' , the company expressly insists that they are not There may be complications in your case that require the special advice of a skilled physician,' if then the results obtained from 'Restorative Nervine' are not satisfactory write to the Miles Medical Company and, if one is to believe the advertisements reliable advice will be furnished you by a competent physician

Because of the number of inquiries that have been received about Dr Miles Restorative Nervine the preparation was analyzed in the Association s laboratory A condensed statement[1] of the chemists report follows

CHEMISTS' REPORT

"*Dr Miles' Restorative Nervine*—This preparation is a brown liquid having a sweetish-saline taste and an odor of a mixture of flavoring oils, among which the oils of lemon and cloves could be detected Qualitative tests demonstrated the presence of ammonia (combined form), potassium, sodium, a small amount of calcium a trace of iron, bromin, a small amount of chlorin and sulphate ion, also benzoic acid (combined form), sugar and color resembling caramel From a consideration of quantitative determinations, which also were made, the following formula would produce a mixture essentially similar to the preparation

Ammonium bromid (NH_4Br)	1 13 gm
Potassium bromid (KBr)	9 87 gm
Sodium bromid	6 93 gm
Sodium chlorid	0 24 gm
Sodium benzoate	0 85 gm
Sugar	54 0 gm
Caramel sufficient to color	
Oil of lemon and cloves to flavor	
Water to make	100 00 c c

"The average single dose for an adult is given as two teaspoonfuls Assuming one teaspoonful to be equivalent to 4 c c the total bromid content corresponds to 23 4 grains potassium bromid This dose, given three times a day, makes the daily dose contain in bromids the equivalent of 70 grains of potassium bromid"

From the chemists' report it appears that "Dr Miles' Restorative Nervine" is another one of the numerous bromid mixtures that have become so common since the passage of the Food and Drugs Act The bromids, while powerful drugs, are not among those that the federal law requires must be declared, both qualitatively and quantitatively on the label The well marked physiologic effects of the bromids impress the public with the potency of any nostrum that contains them

Every carton of the "Nervine" bears the statement in large letters

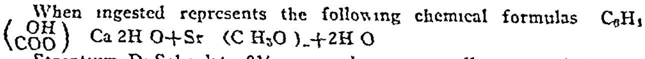
> 'Dr Miles' Restorative Nervine contains no alcohol, opium, morphine heroin chloral hydrate, chloroform, cocain, alpha or beta eucaine cannabis indica or acetanilid'

It fails to mention that the nostrum *does* contain very definite quantities of the depressing bromids which, when taken in ignorance of their presence, may dose the sufferer into physical and mental inactivity No wonder the "patent medicine" interests fight formula disclosure

PULVOIDS CALCYLATES

Report of the Council on Pharmacy and Chemistry

Pulvoids Calcylates 5 grains was submitted by the Drug Products Company, Inc, New York, under the following claims as to composition

> When ingested represents the following chemical formulas
>
> 
>
> $C_6H_4\left(\begin{matrix}OH\\COO\end{matrix}\right)$ Ca 2H O+Sr (C H_5O)$_2$+2H O
>
> Strontium Di Salicylate $2\frac{1}{2}$ grs and our especially prepared Salt of Calcium and Acid Salicylic adjusted in such nascent form that these pulvoids upon ingestion will promptly form Calcium Neutral Di Salicylate $2\frac{1}{2}$ gr'
>
> A combination of Calcium and Strontium Di Salicylate in seemingly true chemical union

These statements are rather vague, possibly because they are an attempt to mystify The product, however, may be assumed to be a mixture (not a chemical combination) of calcium salicylate and strontium salicylate The therapeutic claims made for the preparation are

> Superior to ordinary salicylates Can be taken continuously and indefinitely without gastric irritation insuring maximum efficiency
>
> Reports show surprisingly good results, even where the sodium salt fails

As there is no evidence to show that strontium salicylate, calcium salicylate or a mixture of the two salts has any advantage over sodium salicylate, these claims cannot be accepted The name and the statement of composition are objectionable in that they do not reveal the identity of the drugs in Calcylates" and in suggesting that this preparation possesses radical advantages over salicylates in other forms

The Drug Products Company was told that the facts just mentioned rendered 'Pulvoids Calcylates' ineligible for New and Nonofficial Remedies The company in its reply objected to the Council s conclusions, and in support of its position submitted testimonials from a number of physicians The reply of the company embodied no facts or arguments which had *not* been considered by the Council's referee, and the testimonials from physicians contained no evidence to show that the combination has any real advantage over sodium salicylate

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[1] The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1916

The Council therefore declared "Pulvoids Calcylates" ineligible for New and Nonofficial Remedies for the following reasons Unwarranted therapeutic claims are made for the mixture (Rule 6), the name does not describe the composition (Rule 8), and the mixture is an unessential modification of an established remedy (sodium salicylate) (Rule 10)

SECRETOGEN

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized publication W A Puckner, Secretary

At the request of the Council, Prof A J Carlson of the University of Chicago performed certain experiments on secretin and commercial products (Secretogen and Duodenin), said to contain secretin He found no secretin present in the commercial preparations examined His results further[1] showed that secretin itself is inert when given by mouth, this the Council has previously held The Council endorsed Professor Carlson's findings[2]

The Council has recently received from the manufacturers of Secretogen (the G W Carnrick Company), a letter practically acknowledging the correctness of Carlson's findings in these words

"Professor Carlson seems to have quite well established that the so-called secretin preparations do not contain secretin to any appreciable extent, and that they are inert in laboratory experiments on normal animals"

The letter,[3] continuing, sets forth the company's claims for Secretogen on a wholly new and altogether improbable basis Since the new arguments presented on behalf of Secretogen are merely speculative, the Council reaffirmed its previous action, declaring this preparation ineligible for New and Nonofficial Remedies

Correspondence

Aromatic Spirits of Ammonia

To the Editor —In the controversy regarding the efficacy of aromatic spirits of ammonia (The Journal, July 1, July 15 and August 12), each side is only partly right The
reason that ammonia does not dissipate shock or other
of depression is not specifically that it is destroyed and
it can reach the general circulation, as Dr Wood nerly
that drugs have no influence over depressed st A R,
principle is not generally expounded Louisville

Aromatic spirits of ammonia is, however, a Fellow of
usefulness A whiff of it, by virtue of its p ning from an
ties, resuscitates the depressed patient for a m his car near
which is more than we get from digitalis and f the base of
manner and intensity of this resuscitation ma t the Newark
in giving us an insight into the nature an
depression It is therefore deserving a p Pitman Grove,
restricted pharmacopeia, not as a life saver 1888, aged 55,
agent of New Jersey,

Can we get the same results from whisk pital, Philadel-
but not in alcoholics An aqueous solution a hospital in
sufficient concentration is inconvenient to use , in Camden,
be fortified by aromatic oils as an alcoholic s edical College
on diseases of
ellow of the
of the Ken-
ome, August
Homeopathic
llow of the
the

is not a perfect preparation nor an ideal one, it is even a chemically incompatible solution, but it is the best pharmacy and pharmacology have as yet devised for the emergency outfit

Reverting to the amusing incident of Dr Wood and the country doctor, if the latter believed that a dose of aromatic spirits of ammonia rendered his patient safe he was surely in error, but not more than Dr Wood, who attempted to abort shock by digitalis and strychnin

Is it *not* logical to assume that aromatic spirits of ammonia in shock, mustard baths in collapse, and flagellation in opium poisoning, by awakening large areas of tissues toward autonomic augmented metabolism, are more rational treatment than hypodermic injections of nervines which seem to work as if lifting weights by short leverage?

As to who is to blame, the eminent authors who preserve superstitions, as Dr Hotard contends, or the rank and file who follow blindly, as Dr Wood insists, the answer *must* be, both! It is inexcusable, however, for an intelligent person to allow himself to be led blindly by eminent authorities to use such absurdities as decolorized tincture of iodin, N F, or to believe that the "ethers" developed in tincture of *iron* make it a specific in erysipelas and nephritis

J Lanski, M D, Chicago

The Pasteurization of Milk

To the Editor —With reference to the editorial on this subject in The Journal, Aug 26, 1916, it is not correct to say that "the only valid objections to pasteurization, if indeed they are sufficiently tenable to be serious, come from the pediatricians who look with fear on a possible damage to the milk in point of digestibility or liability to the production of infantile scurvy"

With conditions as they are now or as they promise to be in any visible future, it has come to be universally admitted, so far as I know, by any one qualified to hold an *opinion*, that *market* milk should be pasteurized, by compulsion and under municipal supervision Ask the milk-man, he knows, and, if he is frank, he will tell you how *much milk he* has had to refuse, this year in particular, as being absolutel
sour and incapable of being rendered salable even by pas
teurization If this is true, then how much more comes jus
short of that point, containing from one-half to one billio
bacteria to the cubic centimeter and having undergon dent of
fermentation a little short of the obvious degree , Indian-

Just as surely as oil and water will not mix, jus
is it that, if milk is to be rendered," Kentucky School
the mark— ville, 1876, aged 64, for many year
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cal Society of the State of New York, died at Far
N Y, August 24

Stacey Watkins Boyle, M D, Middlebury, Vt,
Homeopathic Medical College, New York City,
30, died suddenly in Colon, C Z, August 21

George B Wilmuth, M D, Springdale, Ohio, Ecle
ical Institute, Cincinnati, 1864, aged 85, died at
June 12, from cerebral hemorrhage

Edward Balch Knight, M D, Providence, R I,
Medical School, 1867, aged 72, died at his home
from valvular disease of the heart

Zacharias Worth Neil, M D, Verona, Tenn, Uni
Nashville, Tenn, 1872, aged 68, died at his home,
from heart disease

J S Hill, Greensville, Tex (license, years of
Texas), aged 62, died at his home, May 21, from

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[1] Carlson, A J, Lebensohn, J E, and Pearlm
Secretin a Therapeutic Value? The Journal A M A
p 178

[2] So Called Secretin Preparations, The Journal
15, 1916, p 208

[3] The letter is too long for publication here
together with the Council's comment, in the Annual
Council Reprints of it have been prepared and will b
one w

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

SUBDURAL AND INTRAVENTRICULAR INJECTIONS

To the Editor —Please give a detailed statement for making (1) subdural and (2) intraventricular injections

Herbert Caldwell M D, Corpus Christi Texas

Answer —1 Subdural or intradural injection usually refers to injection under the dura of the spinal canal The technic is as follows "The syringe employed for the injection is accurately graduated in drops The patient is placed in a position for lumbar puncture either sitting or lying, according to the choice of the operator The puncture is then made with the needle, the end of which fits the graduated syringe After a few drops of the spinal fluid have flowed out of the cannula, or a greater quantity if a diagnostic puncture is desired at this time, the syringe is fitted into the needle, and the fluid is allowed to run back into the syringe barrel, thus mixing with the amount of the drug in the barrel The mixed spinal fluid and drug are then gently forced into the canal, and slight suction is made on the syringe to withdraw a second amount of fluid which washes out the needle This is then reintroduced, the needle is quickly withdrawn, and the patient placed in the Trendelenburg position, in which position he is allowed to remain for at least one hour"—Kolmer, John A Infection, Immunity and Specific Therapy W B Saunders Company, Philadelphia, 1915, p 806 See also Wile, Udo J The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, The Journal, April 11, 1914, p 1166

Subdural injections are also made under the dura covering the cerebrum From 10 to 20 c c of cerebrospinal fluid are usually first removed by lumbar puncture The technic is similar to that of intraventricular injection, save that a shorter needle is used (See Wardner, Drew M *Am Jour Insanity*, 1915, lxxi, 459)

2 The following is a brief outline of intraventricular injection 'Under ether anesthesia, a small skin flap, slightly larger than the trephine used, is made a little in front of the bregma and 2.5 cm from the sagittal sinus A button of bone 1.5 cm in diameter is removed and the dura incised The slender cannula with blunt point is introduced at a point free from underlying cortical vessels and passed downward and a little backward into the lateral ventricle The head of the table is lowered, and from 10 to 20 c.c. of fluid allowed to escape The head of the table is now raised, and a funnel containing the serum is attached to the cannula by short rubber tubing The fluid enters entirely by gravity and is very slowly introduced The cannula is then withdrawn and the scalp wound sutured In the second and subsequent injections the scalp over the trephine opening is infiltrated with novocain, and the ventricular injection is carried out as described above As the brain is not sensitive, a general anesthetic is not required in second injections"—Hammond, G M., and Sharpe, Norman The Treatment of Paresis by Injections of Neosalvarsan into the Lateral Ventricle, The Journal, Dec 18 1915 p 2147

The substances usually injected by these methods are neosalvarsan and salvarsanized antimeningitis normal and convalescent serums The operations are not without danger to the patients and the results are uncertain (See Riggs C E Salvarsanized Serum in Syphilitic Nervous Disease, Some Salient Facts the Method the Drug the Results, The Journal Sept 4, 1915, p 841)

SOLUTIONS OF ALUMINUM ACETATE

To the Editor —I wish some information on aluminum acetate and subacetate. In The Journal July 24 1915 p 291 is an article by A Ravogli on the treatment of burns by aluminum subacetate and in the discussion of the paper the acetate is mentioned as the same as the subacetate Ravogli uses the subacetate in a 2 to 5 per cent. solution and when I attempted to make a 2 per cent solution of the acetate I found that it was practically insoluble in water 1 Are the acetate and subacetate the same? 2 What is their solubility? 3 What is their value in burns?

A W Patterson M D Fonda Iowa

Answer.—Some confusion may easily arise as to the difference between the two aluminum solutions The National Formulary, Third Edition, described only the solution of aluminum acetate—a basic aluminum acetate solution In the new National Formulary (Fourth Edition), however, the same solution is now described under the heading of "solution of aluminum subacetate," while there has been added a description of another and different solution, but labeled "solution of aluminum acetate" The latter solution is commonly called Burow's solution "Solution of aluminum acetate," N F IV, prescribed as liquor alumini acetatis, contains about 5 gm of neutral aluminum acetate $[Al(C_2H_3O_2)_3]$ per hundred c c The "solution of aluminum subacetate," N F IV, prescribed as liquor alumini subacetatis, contains about 7.8 per cent of basic aluminum acetate $[Al(OH)(C_2H_3O_2)_2]$ per hundred c c

Pure aluminum acetate is quite soluble in water However, the solid decomposes, losing acetic acid, and forming a complex basic mixture This is not soluble except on the addition of acetic acid Hence, it is imperative that in preparing aluminum acetate solutions, methods such as are described in the National Formulary IV should be followed

A dilute solution of aluminum acetate (or subacetate) is stated to be very efficacious in the treatment of Roentgen-ray burns, sunburn, etc It is included in "Useful Drugs" It appears to be practically immaterial whether the normal or basic aluminum acetate is employed, except so far as concerns dosage In case of the "solution of aluminum acetate," one part is used to ten parts water The "solution aluminum subacetate" is used one part to fifteen parts water It is probable that Ravogli referred to the solution which is now described as aluminum subacetate

OXIDATION IN THE BODY AND DIET

To the Editor —In The Journal July 22, 1916 p 249 a writer on the treatment of epilepsy in speaking of the unquestioned benefits of life in camp or on the farm as it is exhibited in modern epileptic colonies says There can be no doubt that the benefit is largely due to increased oxidation of waste and toxic substances' etc Again in discussing the regimen of patients, he remarks The diet should be so modified that in this organism, already toxic as little strain as possible be placed on the liver the thyroid and other defensive glands For this reason the red meats are to be partaken of sparingly The carbohydrates are also to be diminished To take the latter in large amounts is to hamper the oxidation of the tissues an oxidation which for the obvious reason of the autotoxicity of the patient should be maintained at as high a level as possible In the diet emphasis should be laid on the white meats the succulent vegetables and milk eggs also may be permitted"

Am I correct in assuming that the quotations here given present views which can scarcely be accepted as being in accord with the best current teachings of the physiology of nutrition? Certainly the vague generalizations about oxidation and the admonitions respecting the unlike dietary virtues of red and white meats are not in harmony with what one reads from time to time in your editorial columns

A T N

Answer.—In a recent editorial (Relation of Oxidation to Metabolism, Aug 19 1916, p 622), The Journal commented on the inaccurate conceptions of the nature of oxidative processes in the organism still held by some physicians There are few instances, if any—aside from cases of interference with oxidation locally in special organs or tissues—where the supply of oxygen is inadequate under ordinary atmospheric conditions Oxygen is available in abundance, its use is determined by the requirement of the organism In most instances so-called defective oxidation in the body is a misnomer

Why red meats composed of proteins and extractives and constituting muscles in one part of the animal body, should be forbidden while white meats, containing the same proteins and extractives in almost identical concentration in another part of the same animal body, are recommended for liberal use is never explained by those who formulate such prescriptions of diet Aside from slight differences of texture the two forms of muscle tissue are essentially identical—at any rate for dietary purposes If it is intended to avoid the undue ingestion of purins then *all* meats should be proscribed as well as fish fowl and shell foods If it is intended to reduce the protein intake then it must be noted that eggs are quite as rich in albuminous constituents as are *many forms* of flesh The red meat vs white meat distinction ought to be abandoned except where it is desired to *emphasize* differences in palatability or culinary advantages represented by certain muscles such as the 'white' meat of certain birds

Finally the statement that carbohydrates 'hamper' oxidation in the tissues in the ordinary individual is not supported by the modern physiology of metabolism So long as dietary advice is so largely based on empiricism, as it unquestionably still is it seems advisable to avoid all attempts at explanations which will not stand the test of up-to-date investigations so far as this is possible The book is distinctly above the grade of the conversation tables so frequently seen at the back of travelers' guides and pocket dictionaries The physician's supplement, while not quite up to the level of the larger book, is also valuable Both can be heartily commended

Hospital Laboratory Methods for Students, Technicians and Clinicians By Frank A McJunkin, A M , M D , Professor of Pathology, Marquette University School of Medicine, Milwaukee Cloth Price, $1 25 net Pp 139, with 94 illustrations Philadelphia P Blakiston's Son & Co , 1916

"The purpose of this book is to place in the hands of the hospital laboratory worker and the technician of other small laboratories directions for the tests that are commonly required on specimens sent to such laboratories" The work embraces sections on the urine, gastric juice, feces, sputum, blood and bacteriologic, surgical and necropsy specimens The manner in which the material should be handled before and after it reaches the laboratory is indicated in a specific way, and the simplest procedure by which the object of the analysis may be obtained with the greatest certainty is outlined in a detailed manner No attempt has been made to interpret the laboratory findings, as this is rather the function of the clinician than of the laboratory worker While this little book lays no claim to completeness, it is, nevertheless, sufficiently wide in scope to satisfy the needs of the general and hospital worker Whenever there is necessity for more elaborate methods of analysis, larger works must be consulted The choice of methods is excellent, the style of the text is clear and concise, and the illustrations are adequate The book is recommended to all who may desire a short but adequate presentation of the laboratory methods requisite for the daily routine of practice

Human Physiology A Text Book for High Schools and Colleges By Percy Goldthwait Stiles, Assistant Professor of Physiology in Harvard University Cloth Price, $1 50 net Pp 405, with illustrations Philadelphia W B Saunders Company, 1916

This little volume, in the words of the author, aims to present concisely the accepted facts in physiology, with only a limited description of the experiments on which these are based, and with little or no reference to unsettled questions A book written with this aim is necessarily elementary, too elementary for a college and medical school textbook, but on the whole acceptable for the high school The book is well written, but the illustrations are not numerous enough, and some of those given are poorly executed

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Miscellany

Endorsement of Health Insurance by Health Authorities

At the conference of the United States Public Health Service with the health authorities of the several states and territories, held in Washington, May 13 and 15, at which twenty-three states and territories were represented, a resolution was unanimously passed adopting the report of the committee on health insurance favoring the establishment of government systems of health insurance

Discussing the relation of health insurance to the medical profession and to established health agencies, the report of the committee calls attention to the fact that under such legislation as has been adopted in other countries, the local administration of health insurance funds is usually left to local boards created for the purpose, or to trade unions, industrial establishments or societies which have been approved by the central governing board or commission The German act left the administration of the medical benefits to these local bodies, and this resulted at times in restricting the insured persons' choice of physicians to a limited number of contract doctors employed by these local agencies and thus has caused so much friction as to result in "doctors' strikes" The English act, in the effort to remedy this defect, permitted free choice of physicians registered on the panels of the funds, but did not place proper restrictions on the signing of certificates admitting insured persons to benefits The result was that the physicians were too complaisant in signing certificates, and the funds were subjected to improper drain

In the bills for health insurance that have been introduced in the several state legislatures, the German plan has been followed, the matter of providing medical benefits has been left in the hands of local bodies, and no provision has been made for correlating the system with existing health agencies These are serious objections, since without such provisions a health insurance law will have little value as a preventive measure, although it may meet the approval of those who advocate it as a relief measure There must be a close connection of the administration of any health insurance system with the health agencies of the country and with the medical profession It is believed that this can be brought about (1) by providing staffs of medical officers in the federal and state health departments, to carry into effect the regulations issued by the central governing health insurance boards or commissions, (2) by providing a fair and sufficient incentive for the active cooperation of the medical profession, and (3) by providing for a close cooperation of the health insurance system with state, municipal and local health departments and boards

It would seem best to place the administration of the medical benefits under governmental agencies and to provide that no cash benefits be paid except on the certificates of medical officers of the national and state health departments, acting as medical referees under the regulations of the central governing health insurance board or commission Since these officers would be the representatives of the health departments in the funds, their selection and appointment should also be based on their knowledge of preventive as well as of clinical medicine One of their duties should be to examine each disabled beneficiary and keep themselves informed as to the progress of his recovery

With such a check on the payment of cash benefits, the medical and surgical treatment provided for beneficiaries could safely be left to the physician of the patient's choice, and payment made on a capitation basis regardless of whether the patient was sick or well, after the manner of the English national insurance act This method of selection and payment of physicians for the medical and surgical relief would offer every incentive to them to keep their patients well and to endeavor to please by rendering their most efficient service But, in addition, free choice should be allowed to those who prefer institutional treatment by a selected staff, when available, and to this end the local and federated governing bodies might even provide dispensary and hospital units, each such unit to include a staff of physicians, surgeons, oculists, dentists and other specialists, and a staff of visiting and bedside nurses

The greatest value of such a system of administration of the medical benefits would be in the organized corps of medical officers and of attending physicians registered on the panel, and in the opportunity it would offer for preventing disease among the insured persons and their families The objection could not be raised that such a corps would be too expensive It would not require more than one such medical officer to every 4,000 insured persons, and at that rate they could more than save their salaries by relieving insurance funds from paying unjust claims Furthermore, while an estimate cannot be made of the amount to be saved by their efforts in the way of lowering the sick rate, it is safe to say that it would amount to many times more than the sum of their salaries

Health officials should realize, now, the necessity for correlating the administration of the medical benefits of any proposed health insurance system with existing health agencies If health departments are at present inefficient, they should be strengthened and made adequate to meet all demands To enact a health insurance law simply as a relief measure without adequate preventive features would be a serious mistake, but with a comprehensive plan for disease prevention there is every reason to believe that it would prove to be a measure of extraordinary value in improving the health and efficiency of the wage-earning population

The recommendations of the committee, which were adopted by the conference, are as follows

The following fundamental provisions should be embodied in any health insurance measure proposed for national or state governments

1 *Insured Persons*—Every person engaged in a gainful occupation and earning less than a specified annual income, say $1,000, should be entitled to the benefits provided under the law Every person earning more than the specified annual income should be allowed to qualify for the same benefits or greater benefits according to annual income

2 *Funds*—To be provided jointly by contributions from employees and employers, the government to approprate for the expenses of supervision and administration

3 *Benefits*—The following benefits should be provided

(*a*) Cash Benefits Weekly cash payments in case of disability due to sickness, nonindustrial accident, or to childbearing by the beneficiary, for a period not to exceed twenty-six weeks in any one twelve-month period

(*b*) Death Benefits Cash payment (for funeral expenses) to legal heirs for death due to sickness or nonindustrial accident

(*c*) Medical Benefits To include adequate medical and surgical care, medicine and appliances in home, hospital, sanatorium, dispensary or physician's office, beginning with the first day of disability, whether due to sickness nonindustrial accident, or to childbearing by the beneficiary or the wife of the beneficiary, and limited to a period of twenty-six weeks in one twelve-month period

4 *Administration*—All matters of promulgation of rules and regulations and appeals should be vested in a national or state commission created for this purpose All matters of local administration should be vested in local boards of directors federated according to districts, subject to supervision by the central authorities, and rules and regulations promulgated by the commission

The commission and all local and federated boards should be composed of persons representing the contributors to the funds The number representing employees and employers should be in the same ratio as their respective contributions

Provision should be made for free choice of any physician registered on the local panel, and provision might be made also for adequate institutional care for those who prefer this method of medical benefits

A corps of full-time medical officers should be provided within the national or state health service to have supervision of all hospital and dispensary relief, to examine all insured persons claiming to be disabled, and issue certificates in accordance with the regulations promulgated by the commission, to advise the administrative authorities and all contributors to the funds as to the best measures for the relief and prevention of sickness, to advise with the physicians attending sick members as to measures which will shorten the periods of disability and to perform such other duties as may be fixed by regulations

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Sterilization of the Insane—The annual report of the American Institute of Criminal Law and Criminology gives a summary of what the various states are doing as regards the criminal insane

Indiana—No operations since 1908

Washington—No operations had been performed before last year's report was written No information has been received since then

California—Insane, 634 criminal 1 Since passage of law

Connecticut—Insane 21 since passage of law

Nevada—No operations

Iowa—No operation under old law

New Jersey—No operations.

New York—No operations Case pending before courts March 1916

Michigan—No operations

Kansas—No information No operations up to 1915

Wisconsin—Feebleminded 24

So far as the committee has been able to ascertain no attempt is being made to enforce any of the laws providing for the sterilization of criminals except in Washington where the law is punitive

Medicolegal

Evidence and Law as to Misbranding of Pink Pills

(Eleven Gross Packages More or Less of Dr Williams Pink Pills v United States (U S), 233 Fed R 71)

The United States Circuit Court of Appeals, Third Circuit, affirms a decree of forfeiture for averred misbranding of the packages of pills in violation of the amendment of Aug 23, 1912, to the Food and Drugs Act The court says that to its mind the words used in the statute are clear in meaning The purpose of the act was, in the branding of drugs, to punish false and fraudulent statements regarding the curative or therapeutic effect of such drug or any of its ingredients Limiting the extracts to locomotor ataxia alone, the court notes the branding complained of made the statement that the pills were Useful in locomotor ataxia and partial paralysis This remedy is offered to the public with full confidence in its efficacy in the treatment of diseases arising from or dependent upon impoverished blood, rheumatism, leucorrhoea These pills are a valuable remedy for sciatica, and have accomplished beneficial results in partial paralysis and locomotor ataxia Cases diagnosed as locomotor ataxia and as partial paralysis, and having characteristic symptoms have shown beneficial results under this tonic treatment, and in the cases under observation the resulting improvement has been lasting" The libel alleged that "These statements were false and fraudulent in this That they indicated to the purchaser thereof, and created in the minds of the purchasers thereof, the impression and belief that the said article was a remedy for, when in fact it was not a remedy for, locomotor ataxia, partial paralysis," etc In support of its case, the government called several witnesses, physicians of proved ability, knowledge and experience, who testified that the pill would not, and why it could not, have any beneficial effects in locomotor ataxia and the other diseases named They also testified to the fact that medical opinion was unanimous in so saying It was also shown, and all of this without contradiction, that the pill was practically the well known Blaud pill, used generally in medical practice It was complained that the testimony of these witnesses was not competent, being a mere expression of their personal opinions or views But an examination of the proofs showed that the case was wholly different from one in which witnesses were testifying to their personal views on a controverted question of opinion The testimony here was of fact, namely, that there was general, uncontroverted consensus of opinion In the absence of countervailing proof in such matters, it was manifestly a question for the jury to determine the fair or fraudulent character of the branding statement This question the court left to it, saying If they were satisfied "that the pills were shipped in interstate commerce, with an honest belief on the part of those responsible for making the statement that they would do just what was stated on the label they would do, then it would be your duty to return a verdict in favor of the defendant Referring to such statements, the court further said "You will take those facts into consideration, and determine whether or not it was the intention of this language, interpreting it as an ordinarily intelligent man would, on the part of the claimants to convey the impression that they were to cure or act as a remedy for the diseases and ailments even where the language does not directly say so If it was the intention to so frame a statement that it conveyed those impressions, and those statements were false, and they are known to be false, or you can infer the intention to defraud then it would be your duty to return a verdict in favor of the government If you believe from the evidence that any one of the therapeutic claims as to the effect of these pills upon locomotor ataxia, St Vitus dance, sciatica rheumatism, impotence spermatorrhoea, or partial paralysis was false, and was made by the claimant with a reckless and wanton disregard as to whether it was true or false, you may find a verdict for the government." On the whole, it may be said the cause was properly tried and fairly submitted

Peace and War in the Human Organism

Dr F McDee Harkin, Marquette We should give the human organism a clean heredity by proper legislation controlling marriages and permitting the asexualization of the manifestly degenerate, but better still would be a propaganda of education, beginning in the schoolroom and based on the Biblical injunction "Know thyself" We should utilize and improve on every existing measure of child protection and social reform, from fresh air funds and the prohibition of exhausting child labor, to sanitary housing, pla grounds for old and young, social centers that are more attractive than the saloon, and popular education on vital subjects by the lectured moving picture show Greater prominence should be attached to the full time health officer whose work in the schoolroom and in matters of sanitation is not yet half appreciated and who should be among the best paid and most respected of our citizens There should be the employment of all legitimate means of exploiting the truth with regard to fake medical nostrums, from "oxydonor" tin tubes to Christian Science adumbrations of the spirit, which latter cult, with its ostrich-like head in the sand nescience, never seems to recognize the limitations of the basic fact of the centuries that faith and a cheerful spirit are but factors, and not always essential in numberless therapeutic measures which are positively indispensable

Age and Arterial Degeneration

Dr B A Shepard, Kalamazoo Attention in the past to sclerotic changes in the artery has largely centered about the intima Rokitanski believed that cells were deposited directly from the blood stream on the intima, Virchow believed that there was some formative stimulus and that the thickening was an inflammatory hyperplasia, Thomas maintained that the thickening was a compensatory thickening of the vessel wall to diminish the lumen of the blood vessel, the increase of which was due to increased blood pressure, this presupposes that the increased blood pressure antedates the beginning of the thickening

All these men looked on the intima as the location of the primary changes but Koster and others maintained that the degenerative changes of the arterial wall had their origin in the adventitia and infiltration from there to the media through the vasa vasorum Koster determined that except in the brain and lungs the vasa vasorum do not pass deeper than the outer third of the media but in the brain and lungs there was a fine capillary network penetrating the deeper layers of the media and along the medial surface of the elastica interna This is of special interest in the study of brain syphilis A close study of the structure of the artery, especially the media, is held by some to argue against the theories brought out of degeneration of the whole wall due to direct irritation of the intima from the blood stream My own view is that the etiologic factors, by this meaning the toxic agents either chemical or bacterial, may come either through the blood stream in the lumen of the artery or through the vasa vasorum, the latter I believe the principal source especially for bacterial factors Thus I believe that most bacteriologic degenerative changes originate as a mesarteritis rather than as an endarteritis

As an etiologic factor, syphilis is the most frequent of any of the factors which are definitely known to be in themselves solely responsible for arterial degeneration It is quite generally believed by observers that mesarteritis due to syphilis is liable to affect the first part of the aorta but it has quite a tendency to extend down to the sinuses of Valsalva and here produce constrictions about the mouths of the coronary arteries and result in weakening of the myocardium and angina Often the process is over the cusps of the aortic valves themselves causing a deformity and shrinkage thereby giving rise to an aortic insufficiency In every case of aortic insufficiency the possibility of syphilis as an etiologic factor should be considered

A recent theory ascribes hyperactivity of the suprarenals as important in the production of arterial degeneration A contraction of the arterioles is produced and consequently the vasa vasorum receive a diminished amount of blood, and the vessels are insufficiently nourished

In our active treatment of the condition as found, the term "moderation" must apply The mental as well as the physical activities should be well considered One of the first demands is usually that of toxemia from faulty metabolism and deranged digestive processes and removal of foci of infection Closely related to this is the action and relation of the diaphragmatic muscle with its impaired function and resulting effects on the splanchnic vessels and gastric motility during digestion, together with its effect on the respiration and oxygenation

In those cases showing renal inadequacy, I have seen considerable benefit from the use of potassium or sodium citrate The solids in the urine will gradually increase, and then, too, it is sudorific in its action

Adhesions of the Pelvic Colon

Dr James T Case, Battle Creek The present terminology refers to that portion of the colon from the crest of the left ilium to the inner border of the left psoas muscle as the iliac colon, and from this point to the front of the body of the third sacral vertebra as the pelvic colon The pelvic colon is normally freely movable, and the proper function of the pelvic colon and rectum as a mechanism for accumulation and periodic discharge of fecal matter depends on this movability of the pelvic loop The pelvic colon is normally more or less fixed, owing to the shortness of the mesocolon at this point, but the middle of the pelvic loop should rise during the accumulation of fecal matter Normally the act of defecation clears the colon below the splenic flexure When the pelvic loop is adherent or, being very long, incarcerated, the evacuation is complete These adhesions should be proved both by enema and by test with the barium meal, under fluoroscopic guidance The Roentgen findings should be considered with the other clinical findings Enterospasm is an important symptom of adhesions, although it may be present without adhesions

A serious question is raised as to the advisability of employing the pelvic colon as a means of covering up raw surfaces in the pelvis following pelvic operations Care should be exercised to place the pelvic loop carefully to avoid, if possible, the production of binding adhesions which may later make the patient's life miserable on account of constipation

DISCUSSION

Dr Richard R. Smith, Grand Rapids We have all been interested in the matter of covering in surfaces in the pelvis following operations to prevent adhesions, and have employed the pelvic colon for this purpose, but it has its limitations I use the colon for covering in raw surfaces on the left side of the pelvis but believe it is best not to attempt to crowd it down in the pelvis to cover such surfaces To prevent adhesions I am now using a large rubber dam which was brought to the notice of the profession by Dr Keefe of Providence, R I One can use a large piece of rubber dam After bringing the omentum down over the intestine, the rubber dam is placed over it, leaving the surface smooth and apparently free from any traumatism

Dr Reuben Peterson Ann Arbor The illustrations show beyond question that with reverse peristalsis in constipated women there is pain around the cecum and they assume certain positions to overcome this pain This leads to great difficulty in making the diagnosis unless some such method as Dr Case has referred to is employed

In the old days, when we used to cure patients primarily, they suffered a great deal afterward on account of adhesions of the pelvic colon They suffered from all sorts of sequelae We were not as careful about peritonization of the pelvis as we are now These patients suffered from a gluing down of the pelvic colon in the pelvis All of our methods of operating should be directed toward preventing these adhesions

Dr James T Case Battle Creek Pain in the cecum and in the region of the appendix is very common after appendectomy Appendectomy has been done in such cases under insufficient indications Patients have complained of pain, and their appendixes have been removed, but the pain still continues It was not an appendical pain but a cecal pain The appendix at operation in such cases does not look violent inflamed and constipation after operation is a frequent

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

Annals of Ophthalmology, St Louis

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1 Intradural Tumor of Optic Nerve E C Ellett, Memphis, Tenn —p 435
2 Resume of Experiments on Effects of Different Conditions of Lighting on Eye C E Ferree and G Rand, Bryn Mawr, Pa —p 447
3 Spontaneous Absorption of Opacities in Crystalline Lens S H Brown, Philadelphia —p 457
4 Sclerocorneal Trephining Operation for Glaucoma Report of Forty Five Operations W R Parker, Detroit —p 467
5 Epibulbar Sarcoma E B Heckel, Pittsburgh —p 474
6 Six Cases Treated with Tuberculin, Including Cases of Keratitis, Choroiditis and Cyclitis C A Clapp, Baltimore —p 478
7 Optic Neuritis from Syphilitic Leptomeningitis W H Wilder, Chicago —p 489
8 Miners' Nystagmus F L Hoffman —p 503

Arkansas Medical Society Journal, Little Rock

August, XIII, No 3

9 Arteriosclerosis F B Young, Little Rock —p 45
10 Common Fallacies in Technical Diagnosis of Indigestion E D Holland, Hot Springs —p 48
11 Differentiation Between Upper (Central) and Lower (Peripheral) Motor Neuron Involvement G B Fletcher, Little Rock —p 50

Boston Medical and Surgical Journal

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12 Hygiene of Mind B P Croft, Greenfield —p 251
13 Mental Preparedness J J Putnam, Boston —p 260
14 Meaning of Mental Hygiene Movement W A White, Washington, D C —p 264
15 Menace of Mental Deficiency from Standpoint of Heredity H H Goddard, Vineland, N J —p 269
16 Functions of Social Service in State Hospitals H Curtis, Hathorne —p 271

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

June, VIII No 12

17 Dispensary Abuse and Certain Problems of Medical Practice J W Williams, Baltimore —p 229

Florida Medical Association Journal, Jacksonville

August III No 2

18 Lumbar Puncture and Examination of Spinal Fluid R N Greene, Chattahoochee —p 33
19 Interpretation of Wassermann Reaction W P Dey and G E Henson, Jacksonville —p 40
20 Diagnosis and Treatment of Syphilis J E Gammon, Jacksonville —p 43
21 Few Facts Concerning Complement J R Bean, Jacksonville —p 48

Journal of Biological Chemistry, Baltimore

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22 Quantitative Comparison of Casein, Lactalbumin and Edestin for Growth or Maintenance T B Osborne and L B Mendel, New Haven, Conn —p 1
23 *Effect of Surgical Procedures on Blood Sugar and Renal Permeability A A Epstein, J Reiss and J Branower, New York —p 25
24 *Comparative Study of Behavior of Purified Proteins Toward Proteolytic Enzymes E M Frankel, New Haven, Conn —p 31
25 Metabolism of Sulfur Relative Eliminations of Sulfur and Nitrogen in Dog in Inanition and Subsequent Feeding H B Lewis, Urbana, Ill —p 61
26 *Physiology of Phenols H Dubin, Philadelphia —p 69
27 *Influence of Ingested Carbohydrate, Protein and Fat on Blood Sugar in Phlorizin Diabetes F A Csonka, Pittsburgh —p 93
28 Researches on Pyrimidins Synthesis of Thymine 4 Aldehyd T B Johnson and L H Cretcher, Jr, New Haven, Conn —p 99
29 Cerebronic Acid Relation of Cerebronic and Lignoceric Acids P A Levene and C J West, New York —p 115
30 Dialysis of Trypsin and Proteoclastic Action of Protein Cleavage Product C Funk, New York —p 121
31 Influence of Ethyl Alcohol and Glycerol on Rate of Solution of Casein by Sodium Hydroxid T B Robertson and K Miyake, Berkeley, Calif —p 129
32 Chondrosamine P A Levene, New York —p 143
33 Synthesis of Hexosamines P A Levene, New York —p 155
34 Physiologic Action of Glucal J O Balcar, Chicago —p 163
35 Formation of d Lactic Acid by Autolysis of Pus H Ito, Japan —p 173
36 Origin of Humin Formed by Acid Hydrolysis of Proteins Hydrolysis in Presence of Carbohydrates and of Aldehyds R A Gortner, St Paul —p 177
37 *Uric Acid Solvent Power of Normal Urine H D Haskins, Portland, Ore —p 205
38 Cell Penetration by Acids Further Observations on Blue Pigment of Chromodoris Zebra W J Crozier —p 217
39 Id Data on Some Additional Acids W J Crozier —p 225
40 *Feeding Experiments on Substitution of Protein by Definite Mixtures of Isolated Amino Acids H H Mitchell, Urbana, Ill —p 231
41 *Digestibility and Utilization of Egg Proteins W G Bateman, New Haven, Conn —p 263

23 **Surgery and Renal Permeability** —Operative procedures under anesthesia cause an increase in the blood sugar content (hyperglycemia), associated with a reduction or impairment of renal function From this it is concluded by the authors that diminished permeability of the kidneys is responsible for the infrequent elimination of sugar in the urine after operation

24 **Comparative Study of Proteolysis** —It has been demonstrated that pepsin is the effective agent in pepsin hydrochloric acid digestion since hydrochloric acid alone in the concentrations ordinarily employed has very little proteolytic effect As a result of a series of experiments the conclusion seems justified to Frankel that comparable results in proteolysis studies are to be obtained only when the substrates are in solution, otherwise deviations of 10 to 15 per cent may be encountered in duplicate experiments An examination of the digestion of thirteen proteins shows that there is a parallelism in the cleavage curves of all the proteins, if the cleavage is calculated as the ratio of the amino nitrogen liberated at any one time to that obtained on total hydrolysis of the protein with strong acid Pepsin hydrochloric acid can liberate about 20 per cent of the total amino nitrogen of a protein in less than 100 hours Trypsin acting on proteins partially digested with pepsin effects a cleavage of about 70 per cent The action of trypsin on native proteins can cause a cleavage of about 50 per cent of the peptide linkages Further addition of trypsin may cause further disintegration of the protein Erepsin following the action of pepsin is a very effective agent in causing the disruption of the protein molecule In two series of experiments cleavage of about 85 per cent of the protein could be demonstrated The successive action of pepsin, trypsin and erepsin liberates about 85 to 90 per cent of the total amino nitrogen of the protein studied

26 **Physiology of Phenols** —The results of Dubin's investigation, in addition to confirming the findings of Folin, bring to light some interesting observations The elimination of phenols from day to day is quite constant Withdrawing water from the diet causes an increased phenol elimination After Eck fistula, the free phenols represent as high as 97 per cent of the total, the latter, as also the former, exhibiting a tendency to decrease After intestinal obstruction, there is an increase in both free and total phenols, the former constituting as low as 55 per cent of the latter In pancreatic insufficiency, there is an increase in both free and total phenols with an accompanying decrease in the percentage of free phenols After excluding the bile, both free and total phenols increase, but with an increase in the percentage of free phenols The feeding of phenol and p-cresol results normally, with but slight variations, in the elimination of about 65 per cent and 40 per cent, respectively After Eck fistula, about the same excretion is noted After intestinal obstruction, pancreatic insufficiency, and exclusion of bile, there is in both cases a drop in the amount excreted The feeding of tyrosin results normally in an excretion of about 14 per cent, as phenols After Eck fistula, practically the same amount is eliminated

After exclusion of bile and pancreatic juice, about 20 per cent of ingested tyrosin is eliminated Feeding of any of the three substances causes an increase in the conjugation at all times—p-cresol to a greater degree than phenol, and the latter to a greater extent than tyrosin Tyrosin, phenol and p-cresol, fed in amounts of 5 gm, 1 gm and 1 gm, respectively, were all eliminated within twenty-four hours No unchanged tyrosin could be demonstrated in the urine or feces Fasting reduces the phenols to a low level, the injection of phlorizin during fasting causes an increase in the output of phenols It is impossible to free the urine entirely of phenols by the use of calomel The bile appears to have some influence on the conjugating function of the liver The phenols can be taken as an index of intestinal putrefaction

27 **Phlorizin Diabetes**—Following the ingestion of 20 gm of glucose the blood sugar reached the maximum at the second hour, and declined to the original level at the fourth hour In another experiment, it was shown that of 16 gm of glucose given to a phlorizinized dog 94 per cent was excreted during the first five hours as extra glucose The curve of the blood sugar content runs parallel with the curve of the extra glucose Since the elimination of ingested glucose is practically complete and the curve of blood sugar runs parallel to that of extra glucose, the conclusion is reached that no glucose was deposited between the periods of absorption and elimination The only difference observed in the blood sugar content after the ingestion of large quantities of glucose in a more concentrated solution (50 gm of glucose in 150 c c of water) is that the hyperglycemia is maintained for a longer period of time That the blood sugar is increased after ingestion of protein is apparent from the curve which shows that the endogenous glucose derived from meat protein and gelatin appears in the blood as glucose—at least, partially so—since the isoglucogenic quantities of ingested endogenous and exogenous glucose should give the same increase of blood sugar The ingestion of fat, which does not produce extra glucose, did not cause any appreciable increase in blood sugar

37 **Uric Acid Solvent Power of Urine**—When shaken with uric acid for twenty minutes at 37 C, Haskins found that many urines that are slightly acid and all that are neutral or alkaline take up extra uric acid The less acid the urine the more uric acid, as a rule, it will dissolve Dilute urines when considered in proportion to their concentration show much greater solvent power than less dilute urines Some urines dissolve so much uric acid that they come to contain more uric acid than is present in a saturated solution of monosodium urate. Haskins suggests that in all probability in these cases at least part of the uric acid is in colloidal solution

40 **Feeding Experiments with Amino-Acids**—Experiments are reported by Mitchell in which mice have been kept alive for seventy to ninety-eight days by feeding alternately (1) rations containing 4 to 6 per cent of various mixtures of isolated amino-acids, 6 to 4 per cent sucrose 34 per cent starch, 28 per cent protein free milk (prepared either according to the procedure of Osborne and Mendel or to a modification of this procedure described in the text), 10 per cent lard and 18 per cent butter fat and (2) a ration containing 10 per cent sucrose with other constitutents in the same proportion as in the first mentioned rations In many of these experiments periods of fifteen to thirty-five days duration have been observed in which the mice practically maintained their weight The alternate feeding of an amino acid ration and a nonnitrogenous ration (except for the nitrogen present in the protein free milk) induced a better total consumption of food than feeding with an amino-acid ration alone and in all other respects led to more successful results However it is probable that in no case was the amino-acid intake sufficiently large to assure a fair test of its adequacy

Amino-acid rations containing no added tyrosin or no added tyrosin and phenylalanin, did not give appreciably different results from rations containing these amino-acids However, if tryptophan was absent from an amino-aicd ration, the period of survival of mice fed this ration alternately with the nonnitrogenous ration was noticeably shorter than the periods of survival of mice kept on rations containing added tryptophan Mice could be kept for much longer periods of time on rations containing mixtures of amino-acids including tryptophan fed alternately with the nonnitrogenous basal ration than when fed the basal ration alone. Furthermore this difference *in survival* cannot be accounted for by a difference in energy intake This fact has been interpreted as meaning that at least some of the amino-acids have specific functions in metabolism aside from that of serving simply as material for the synthesis of body protein

41 **Utilization of Egg Proteins**—Raw egg-white, Bateman says is a decidedly indigestible substance It may cause diarrhea in dogs, rats, rabbits and man when ingested in any large quantity Its utilization by the body is poor since it is used only to the extent of 50 to 70 per cent Subjects can acquire a certain tolerance for the native protein after ingesting it for several days so that it no longer causes diarrhea and is somewhat better utilized Raw egg-white can be made digestible through coagulation by heat, by precipitation with alcohol, chloroform, or ether, by incubation with dilute acids or alkalies, by partial digestion bv pepsin, by conversion into alkali-metaprotein The indigestibility of native egg-white probably lies either in its antitryptic content or in its chemical constitution Its physicial texture appears to play a minor part in its behavior Of the individual proteins constituting egg-white, the albumin fraction appears to be the indigestible component The whites of the hen's egg and duck's egg act alike in causing diarrhea and in being poorly utilized Egg-yolk either raw or cooked is excellently utilized It sometimes causes digestive disturbances in dogs, apparently because of its high fat content In current dietotherapy raw whole eggs, raw egg-white, and albumin water, are extensively prescribed There appears to be little in their conduct as foodstuffs, however, to warrant such faith in their nutritive value or ease of assimilation

Journal of Cancer Research, Baltimore

July I No 3

42 *Teratomata of Brain M Barron, St Paul—p 311
43 Hereditary Transmission of Differences in Susceptibility to Growth of Transplanted Tumors in Various Strains of Mice M S Fleisher and L Loeb St Louis—p 331
44 Precancerous Dermatoses W J Heimann New York—p 343
45 Model of Gastric Tubules in Early Gastric Cancer L B Wilson Rochester Minn—p 357

42 **Teratomata of Brain**—A study of the cases of brain teratomata discussed in the literature Barron says, shows that tissues of mesodermic origin are the elements most commonly found in these tumors However excluding the case cited by the author there are only four examples (Strassmann and Streckner, Saxer, Gutzeit and Newmann) in which there is reported the presence of striated muscle fibers Similarly in only one other case (Saxer) is there described the presence of spaces lined with columnar epithelium containing goblet cells Indeed, Saxer's resembles the *present* case more closely than any other It is interesting to note that practically all the cases which developed symptoms from these tumors died before the twentieth year The origin of such tumors is best explained by the inclusion of totipotential cells very early in the development *of the ovum* The tumor here described presents derivatives from all three primitive germ layers This tumor belongs to the embryonal type of teratomata originating most probably in the epiphysis

Journal of Laboratory and Clinical Medicine, St Louis

August I No 11

46 *Immunity in Syphilis H Zinsser New York—p 785
47 Estimation of Sugar in Blood by Lewis Benedict Method Graph for Obtaining Directly Percentage of Dextrose L McDanell New Haven Conn—p 804
48 Role of Cholesterol in Pathology J C Small Chicago—p 809
49 *Complement Fixation Test in Tuberculosis H R Miller New York—p 816
50 Quantitative Estimation of Phenol Tetrachlorphthalein Excreted *in* Fresh Bile in Disease of Liver H L McNeil Galveston Texas—p 822
51 Focal Infection J W Shuman Sioux City Iowa—p 825
52 Case of Progressive Lenticular Degeneration with Necropsy C Hunter and S J Peirce Winnipeg Canada—*p 830*
53 Roentgenographic Studies of Cerebral Vascular Lesions C O Dhonau Cincinnati—p 836
54 Stupid Words and Statements Commonly Appearing on Laboratory Reports B G R Williams and E M Williams Paris Ill—p 841

46 **Immunity in Syphilis**—Complete sterilizing immunity or in other words, complete cure Zinsser says, occurs but rarely without specific medicinal aid, and the untreated

syphilitic might go on to apparent cure, in that a general syphilization of his body would bring about a general resistance, but would always harbor virulent treponemata which could cause recrudescences in parts in which resistance was diminished, and eventually kill by degenerative processes in the central nervous system where many injuries cannot be compensated for as is possible in other organs The resistance which develops is apparently a new attribute only of the cell groups which have undergone direct reaction with the treponemata This resistance may consist merely in the complete failure of the tissue cells to react to the virus, a sort of "tissue indifference" or "Anergie" It may be, however, and probably is, accompanied by a certain amount of active defense in the form of local phagocytosis of the treponemata by the fixed tissue cells

49 **Complement Fixation Test in Tuberculosis**—Miller emphasizes the fact that complement fixation in tuberculosis is a definitely valuable diagnostic method which will occupy an important place among the practical methods of diagnosis

Journal of Pharmacology and Experimental Therapeutics, Baltimore

August, VIII, No 8

55 *Cross Tolerance Altered Susceptibility to Codein, Heroin, Cannabis Indica and Chloral Hydrate in Dogs Having an Acquired Tolerance for Morphin H B Myers, New York—p 417
56 *Absorption of Potassium Iodid by Thyroid in Vivo, Following Its Intravenous Injection in Constant Amounts D Marine and J M Rogoff, Cleveland—p 439
57 Some New Time Recording Apparatus W Hale, Boston—p 445
58 *Peripheral Action of Opium Alkaloids Effect on Sensory Nerve Terminals D I Macht, S L Johnson and H J Bollinger, Baltimore—p 451
59 *Lethal Dose of Arsenic for Splenectomized Mice C Towles, Baltimore—p 465

55 **Cross Tolerance**—Myers claims that a marked crossed tolerance exists to codein and to heroin in dogs habituated to morphin, in so far as effects on the respiratory center are concerned A slight crossed tolerance exists between codein and morphin, and between heroin and morphin in regard to their actions on the tissues governing equilibrium Dogs tolerant to morphin when given codein or heroin have increased intestinal peristalsis No evidence of crossed toleration to cannabis indica or to chloral hydrate exists in dogs tolerant to large amounts of morphin The experiments cited by Myers show that a cross tolerance may exist between closely related drugs but that this tolerance is evidenced only on those functions in which the drugs have a common selective action

56 **Absorption of Potassium Iodid**—There is apparently no difference between in vitro and in vivo perfusions as regards the percentage of iodin absorbed The absorption is practically instantaneous in each case Maximum thyroid effects are produced by such exceedingly small amounts of iodin and the gland has such an extraordinary affinity for salts of iodin, that its loss through the kidney may be considered negligible, and this probably holds true for all other body tissues The size of the gland and the stage of physiologic activity modify the amount of potassium iodid absorbed apparently to the same degree whether it is introduced by in vitro perfusion or injected intravenously in the living animal The liver and spleen show no retention of potassium iodid, whether introduced by in vitro perfusion or by intravenous injection With constant amounts of potassium iodid introduced and with glands of similar degrees of physiologic activity, there is no noteworthy difference in the percentage absorbed, whether the in vivo perfusion lasts one hour or thirty hours There must be some slight increase in the amount of iodin absorbed from a single dose in the succeeding minutes or hours of a given experiment, but it was not sufficiently marked to be detected as an increase in the iodin content of the thyroid, in this series of glands with the methods employed, although after an hour it was not present in detectable amounts in the circulation

58 **Peripheral Action of Opium Alkaloids**—A quantitative study of the pain threshold before and after local application of various opium alkaloids, shows that they exert a distinctly measurable action on the sensory nerve terminals, producing a slight analgesic effect In the order of their efficiency in this respect the opium alkaloids may be arranged as follows Papaverin, narcotin, morphin, narcein, codein and thebain A combination of total opium alkaloids was found to be more effective than the amount of morphin, or of papaverin or narcotin, it contains would be if given alone The local effect of opium observed in this investigation by the authors agrees well with numerous empirical observations by clinical men in the past and present

59 **Lethal Dose of Arsenic for Splenectomized Mice**—It is concluded by Towles from her experiments that the body resistance to arsenic is not reduced by removing the spleen

Kansas Society Medical Journal, Topeka

August, XVI, No 8

60 Advantage of Transverse Incision in Appendicitis J D Wilson, Emporia—p 221
61 Malignant Tumors of Ovaries, Report of Cases R S Haury, Newton—p 223
62 Biennial Report of the Medical Department of Kansas State Penitentiary P B Matz—p 227
63 Valuable Treatment for Glaucoma H C Markham, Parsons—p 234

Kentucky Medical Journal, Bowling Green

August, XIV, No 8

64 After Effects of Diphtheria on Eye, Ear, Nose and Throat G C Hall, Louisville—p 407
65 Modern Treatment of Diphtheria J I Greenwell, New Haven—p 412
66 Pathology of Glaucoma W D Levi, Louisville—p 414
67 Medical Treatment of Glaucoma I A Lederman, Louisville—p 416
68 Choice of Operations A O Pfingst, Louisville—p 417
69 Ophthalmia Neonatorum and Trachoma J G Carpenter, Stanford—p 418
70 Surgical Infections of Jaw C B Spalding, Louisville—p 425
71 Differential Diagnosis Between Chronic Cholecystitis, Duodenal Ulcer and Simulating Neuroses M Casper, Louisville—p 429
72 Other Fellow's Mistakes G G Thornton, Lebanon—p 432
73 Plea for Better Diagnosis C L Sherman Millwood—p 437
74 Modification of Ferguson's Operation for Excision of Upper Jaw J W Price, Louisville—p 439

Medical Record, New York

August, 26, XC No 2390

75 Seborrheic Dermatitis W P Cunningham, New York—p 353
76 Is Infant Mortality an Index to Social Welfare? Scandinavia's Reply K C Mead Middletown, Conn—p 357
77 Physician and Psychotherapy S E Jelliffe, New York—p 362
78 Medicine as Practiced by Chinese W W Cadbury, Canton, China—p 364
79 Treatment of Paralysis Agitans and Arthritis Deformans by Continuous Bath S Danzer, Brooklyn—p 367
80 Proctitis C J Drueck, Chicago—p 369
81 Case of Laceration of Liver C A Wayland and R T Wayland, San Jose, Calif—p 371
82 Universal Immunization H B Baruch, New York—p 372
83 Fatal Case of Poliomyelitis in Adult J G Smith, New York—p 373

New Jersey Medical Society Journal, Orange

August, XIII No 8

84 Beriberi in Union County Jail H R Livengood, Elizabeth—p 395
85 Home Care vs Institution Training for Blind Babies D E English, Summit—p 398
86 Case of Uterus Didelphys W P Conaway, Atlantic City—p 400
87 Case of Vesico Uterovaginal Fistula and Rectovaginal Fistula W P Conaway, Atlantic City—p 401

New Mexico Medical Journal, Las Cruces

August XVI, No 5

88 Family Physician in Reference to Early Diagnosis of Tuberculosis W T Murphey, Albuquerque—p 143
89 Use of Pituitary Extract in Obstetrics C L McClellan, Farwell, Texas—p 150
90 Salvarsan in Treatment of Syphilis C F Montgomery, Roswell—p 153
91 Kidney Efficiency H A Ingalls, Roswell—p 155
92 Autobiography of Old Silk Hat S D Swope, Deming—p 157

New York Medical Journal

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93 Treatment of Acute Poliomyelitis S J Meltzer, New York—p 337
94 Autotherapy in Poliomyelitis C H Duncan, New York—p 342

95 Control of Epidemics J Manning Saratoga Springs—p 343
96 Evaluation of Paraphrenia (To be concluded) E A Strecker Philadelphia—p 344
97 Study of Drug Action T J Mays Philadelphia—p 349
98 American Medicine of Eighteenth Century G W Cook Washington D C—p 351
99 Roentgenotherapy in Chronic Arthritis. E Zueblin, Baltimore—p 355
100 Toluol Its Value in Sterilization of Vaccines L D Bristol University, N D—p 360
101 Abnormal Labor S Wiener, New York—p 361

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102 Substitute Feeding of Infants J P C Griffith, Philadelphia—p 385
103 Physiologic and Toxic Actions of Formaldehyd S E Earp, Indianapolis—p 391
104 Fever Part of Syndrome of Toxemia F M Pottenger Monrovia Calif—p 392
105 Typhoid I L Nascher New York—p 394
106 General Practitioner J V O Connor Woonsocket R I—p 398
107 Evaluation of Paraphrenia E A Strecker Philadelphia—p 399
108 Chronic Suppurative Otitis Media H B Blackwell, New York—p 402
109 Orthopedics of Hand Report of Two Cases L G Hanley Buffalo—p 405
110 Frost Bite in Hand Resembling Raynaud s Disease N S Yawger, Philadelphia—p 406
111 Value of Iodin in Gonorrhea M Abramovitz Baltimore—p 407

Ohio State Medical Journal, Columbus

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112 Medical Practice—Past, Present and Future G H Matson, Columbus—p 537
113 Problem of Infection S M McCurdy Youngstown—p 543
114 Use and Abuse of Forceps During Labor W Gillespie Cincinnati—p 545
115 Cesarean Section Classical and Extraperitoneal E J March Canton—p 548
116 Pubiotomy Symphyseotomy and Perforation G B Farnsworth Cleveland—p 551
117 Convulsions of Infancy and Early Childhood E G Horton, Columbus—p 553
118 Proctitis C E Howard Cincinnati—p 556
119 Whooping Cough in Ohio F G Boudreau Columbus—p 557
120 Applying Animated Drawing to Teaching of Surgical Technic W J Brownlow, Cleveland—p 560

Oklahoma State Medical Association Journal, Muskogee

August IX No 8

121 Early Cancer of the Stomach A W White Oklahoma City—p 225
122 Carcinoma of Uterus O R Gregg Alva—p 231
123 Surgeons vs General Practitioners Viewpoint of Gastric Disturbances R Grosshart Tulsa—p 235
124 Gastric Ulcer Perforation Followed by Operation Twelve Hours Later and Recovery F S Clinton Tulsa—p 240
125 Radical Treatment and Cure for Epididymitis Acute Subacute and Chronic W J Wallace Oklahoma City—p 242
126 Second Hand Surgery W W Jackson Vinita.—p 243
127 Acute Infective Osteomyelitis J J Dial Muskogee—p 245
128 Mule in Intestinal Tract C W Heitzman, Muskogee—p 248

Southwest Journal of Medicine and Surgery, El Reno, Okla

August XXIV No 8

129 What Are We Doing and What Should We Do for Feebleminded W L Kendall Enid—p 221
130 Apoplexy C Von Wedel Jr Oklahoma City—p 229
131 Surgical Symptomology of Right Upper Abdominal Quadrant F H Clark El Reno—p 238
132 Mechanics of Human Body C B Francisco, Kansas City, Mo—p 242

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Journal of Children's Diseases, London

July XIII No 151

1 Herpes Recurrens H G Adamson—p 193
2 Case of Ateleiosis. F P Weber and G F Stebbing—p 200
3 Appendicitis Complicating Pneumonia J Allan—p 207

Dublin Journal of Medical Science

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4 Fractures and Fracture Dislocations. J S McArdle.—p 73
5 Clinical Report of Rotunda Hospital for One Year November 1 1914 to October 31 1915 W J Smyly R. D Purefoy and E. H Tweedy—p 79
6 Diagnosis in Uveitis. E. Maxwell—p 94

Edinburgh Medical Journal

August XVII, No 2

7 *Toxi Infection of Central Nervous System D Orr and R G Rows—p 78
8 *Four Cases of Acute Fatal Cirrhosis of Liver in Same Family, Suggested Relationship to Wilson s Progressive Degeneration of Lenticular Nucleus B Bramwell—p 90

7 **Toxi-Infection of Central Nervous System**—From clinical cases and the results of experiments Orr and Rows arrive at the following conclusions (1) In spinal and cranial nerves there is an ascending lymph stream to the central nervous system, whose main current lies in the spaces of the perineural sheath Toxins reach the spinal cord and brain by this route, and although they spread to some degree in the lymph spaces of the pia-arachnoid, and so may affect structures at a distance from the point of entrance, they pass for the most part in the main stream along the nerve roots into the substance of the central nervous system (2) Outside the central axis the nerves are possibly protected by the vital action of their neurilemma sheath, most probably, however, it is the peripheral situation of the lymph current which is the deciding factor The author holds that acute and chronic myelitic conditions are readily produced by infection of the ascending lymph system in nerves, that general paralysis of the insane is a chronic inflammatory disease of lymphogenous origin, to tabes dorsalis they assign the same lymphogenous genesis, that cases of acute meningomyelitis fall into the lymphogenous category, and there is now a preponderance of evidence to show that acute poliomyelitis must also be included in this group There are many facts which show that infantile paralysis cannot be a blood infection, and indisputable evidence in favor of the lymphogenous genesis

8 **Familial Cirrhosis**—Four cases of acute fatal cirrhosis of the liver in the same family are reported by Bramwell, the patients being respectively 9 10, 14, and 14 years of age The disease was not due either to syphilis or to alcohol The possible relationship of cases of familial cirrhosis of the liver and Wilson's progressive lenticular degeneration is suggested

Indian Medical Gazette, Calcutta

July LI No 7

9 Case of Pellagra J T Calvert—p 241
10 Iron and Arsenic as Cure for and Prophylactic Against Malaria G W P Dennys—p 242
11 *Cheap Absorbent Dressing for Wounded Incinerated Paddy Husk W A Juctice—p 246
12 Purification of Water Supply of Lawrence Military Asylum Sanawar by Means of Bleaching Powder M A Nicholson—p 248
13 Abdominal and Bovine Tuberculosis in India C A Sprawson—p 257

11 **Incinerated Paddy Husk**—Paddy (i e, rice in the husk) is husked and then boiled at rice mills, the fuel used being paddy husk This is not completely burnt and a large ash is left which Justice has called "incinerated paddy husk." Incinerated paddy husk has a grayish black color and has the consistence of the rough siftings of tea Envelopes or bags of cotton cloth are made Two ounces of the paddy powder are filled into these envelopes, which are sewn up The envelopes are tied up in brown paper in packets of six to a dozen leaving the ends open They are then placed in a steam sterilizer and subjected to a temperature of 120 C for one hour On removal from the sterilizer the ends of the packages are closed and sealed The dressings are applied direct to the wound, care being taken that a sufficient number of bags, according to the size of the wound, are applied A gauze bandage keeps them in position—so little effusion reaches the bandage that the bandages can be used again and again—this is important in military dressings The dressings should be changed every twenty-four hours at least but the ease with which they can be removed or replaced lends itself to more frequent renewals It is a dressing as absorbent cottonwool No leakage takes place till the whole is saturated It is a powerful deodorant The smell from the most offensive wounds is completely absorbed It is a light dressing and is cool a desideratum in tropical climates The dressing is not injured by efficient sterilization

Journal of Laryngology, Rhinology and Otology, London

July, XXXI, No 7

14 *Atrophic Rhinitis (Ozena) and Tuberculosis III —The Pathologic Aspect W Wingrave —p 276
15 Final Report on Isolation and Cultivation of Tubercle Bacillus from Discharging Ear in Cases of Chronic Purulent Otitis Media G H Cocks and J G Dwyer, New York —p 288

August No 8

16 Reports for Year 1915 from Ear and Throat Department of Royal Infirmary, Edinburgh Part III Stenosis of Larynx in Children Following Intubation and Tracheotomy A L Turner —p 313
17 The Past and Present of Otolaryngology P McBride —p 329

14 **Atrophic Rhinitis and Tuberculosis** —Wingrave found that a certain acid-fast bacillus is present in every case of true ozena (atrophic rhinitis) which is never found in any allied conditions. It possesses a close morphologic and tinctorial resemblance to the tubercle bacillus The histologic changes resemble those of a tuberculous condition (lupus erythematosus) Animal inoculation produced lesions undistinguishable from tuberculosis But there are two postulates which have not been conformed with, viz (*a*) Demonstration of the organism in the diseased tissues, (*b*) Production of the disease in an inoculated animal With regard to the first, it is not alone in this deficiency, since other diseases share the same defect As to the second, it is almost an insuperable difficulty in a guinea-pig, not only for anatomic reasons, but also for physiologic reasons The disease in man is spread over a long period of years, and one can hardly expect a condition of such slow growth to be developed in the very *short period of observation on* the short life of the animal So that some critical elasticity is demanded in this direction Notwithstanding these weak links, Wingrave's investigation supports the view that atrophic rhinitis is a disease closely allied to tuberculosis, and that *its* subjects are *purveyors and distributors of an* organism which is probably a variety of the tubercle bacillus

Journal of Tropical Medicine and Hygiene, London

August 1, XIX, No 15

18 *Beriberi Puzzle A Suggested Solution W M McDonald —p 177

18 **Beriberi Puzzle A Suggested Solution** —McDonald is of opinion that the volume of evidence is sufficient to warrant the assumption that improvement in housing and sleeping accommodation where large numbers of men live together, as in barracks, prisons, common lodging houses, mining kongis, ships, should be considered as a particularly important prophylactic measure in countries where beriberi is endemic or epidemic

Lancet, London

August 12 II No 4850

19 *Treatment of Infected Suppurating War Wounds R Morison —p 268
20 *An Anomaly in Widal Reaction A F S Sladden —p 272
21 Effect of Typhoid Inoculation on Endemic Goiter at Lawrence Military Asylum, Sanawar, Punjab —p 275
22 *Etiology of Epidemic Cerebrospinal Meningitis M F H Gamble —p 277
23 Shiah Pilgrimage and Sanitary Defences of Mesopotamia and Turco Persian Frontier F G Clemow —p 289

19 **Treatment of Infected Suppurating War Wounds** —The steps of treatment advocated by Morison are 1 Under an anesthetic, usually open ether, cover the wound with gauze wrung out of 1 20 phenol and clean the skin and the surrounding area with the same lotion 2 Open the wound freely and, if possible, sufficiently to permit of inspection of its cavity (In doing this special regard must be paid to nerve trunks and muscular branches of nerves, since the division of blood vessels, excepting the largest, and of the muscles themselves, does little harm as compared with that of the disability following nerve damage) Cleanse the cavity with dry sterile gauze, mops, Volkmann's spoon, and remove all foreign bodies 3 Mop the surrounding skin and the wound cavity with methylated spirit Cottonwool mops conveying the spirit are used for this purpose, and are introduced on forceps 4 Fill up the whole wound with the following paste bismuth subnitrate, 1 ounce by weight, iodoform, 2 ounces by weight, with sufficient quantity of liquid paraffin to make a thick paste Dress it with sterile gauze, and cover all with an absorbent pad, which is held in position by sticking plaster and a bandage This dressing requires no change for days or weeks if the patient is free from pain or constitutional disturbance Should, however, discharge come through, the stained part must be soaked in spirit and a gauze dressing, wrung out of the same, applied as a further covering The advantages of this treatment have been most striking in cases of compound fractures of the long bones Previously such compound fracture patients suffered so severely that their treatment had proved an ordeal for all concerned Such cases now are associated with little more suffering and trouble than those of fracture without a wound at all Redressing is very simply done After removal of the old dressings the wound is covered with a dossil of wool soaked in spirit, and the sticky, dirty looking discharge is wiped off the surrounding skin until it is clean This is done with dossils of cottonwool, soaked in spirits and applied by forceps The wound and a small area of the surrounding skin are then plastered with paste, which in its turn is covered by a gauze dressing under a pad and bandage In more than forty cases treated by this method, there has been no need to change a dressing sooner than intended There has been, except in head wounds, no spread of septic infection, no cellulitis nor abscess formation, and no aggravation of constitutional disturbances after the operation Relief of pain and fall of pulse and temperature when they were abnormal has been the invariable rule

20 ***Anomaly in Widal Reaction*** —In order to diminish the occurrence of this zone phenomenon as much as possible, the use of distilled water as diluting fluid instead of normal saline has been initiated by Sladden in his routine work No practical objections to its use have been discovered, nor *is the sharpness of the end point impaired It is not claimed* that the operation of the zone effect is thereby annulled but that it is diminished and the agglutination test rendered distinctly more delicate without becoming any more complicated

22 **Etiology of Epidemic Cerebrospinal Meningitis** —It is Gamble's firm conviction that cerebrospinal meningitis in epidemic form is a true gonorrheal inflammation of the *arachnoid membrane of the brain and spinal cord* set up by the bites of gonococcal *infected pediculi corporis*

Bulletin de l'Académie de Médecine, Paris

July 25, LXXVI, No 30, pp 65 88

24 *Radiotherapy of Intra Abdominal Neoplasms of Testicular Origin A Beclere —p 72
25 *Autoserotherapy in Gonorrheal Orchitis Wagon —p 81
26 Serotherapy in Typhoid Technic for Preparation of the Serum A Rodet —p 83
27 Advantages of the Ass as Vaccine Producer (L'asino vaccin et ses avantages) Arnaud and Huon —p 85

24 **Radiotherapy Effectual for Tumors Originating in Testicles** —Beclere reports three cases which confirm the peculiar susceptibility of tumors of this class to radiant energy The first case was the most strikingly successful of any he has ever encountered A young man of 35 had an enormous tumor of the spleen three years after a retained testicle on that side had been removed on account of pain and epitheliomatous degeneration The spleen had become involved in the course of time and had rapidly enlarged without any signs of leukemia, but entailing extreme anemia and emaciation The weight was only 60 kg, but the girth of the abdomen was 86 cm, the solid tumor reaching from the diaphragm to the groin and apparently filling the entire left half of the abdomen and encroaching on the right side Under weekly Roentgen exposures of 4 H units for each region, the tumor began to retrogress at once In five months of the radiotherapy the 24 kg he had lost were regained, no tumor could be palpated, and there has been no return of symptoms during the five years since The young man has been serving as a cavalry officer through the war The other cases showed marked improvement, permanent in one, but the other patient succumbed to metastasis There is

no doubt, Beclere reiterates, that the cells of a testicle are exceptionally sensitive to radiotherapy, and tumors originating in them share this susceptibility

25 **Autoserotherapy of Gonorrheal Orchitis**—Wagon has only four cases to report but the results were so good and so prompt that he thinks the method deserves more of a trial He punctured the scrotum and injected 1 c c of the effusion aspirated from the scrotum into the subcutaneous tissue in the man's thigh

Paris Médical

August 5 VI No 32 pp 101 152

28 An Automobile Surgical Ambulance R Monod—p 101
29 Technic for Amputation from Standpoint of Prosthesis Later (L amputation de Gritti au point de vue de la prothese) E Meriel—p 107 (Moignons d amputation du membre inferieur au point de vue de l appareillage) Judet—p 126
30 Drainage after Operations on Gastro Intestinal Tract H Chaput—p 112
31 Importance of Prompt Reeducation of the Elbow After Resection (Le role de la reeducation motrice dans la resection du coude) Koundjy—p 115
32 Combination of the Abbott and the Forbes Methods of Treating Scoliosis (Notre technique actuelle du traitement de la scoliose Suppression du hamac, passage de feutres fenetres etc) J Calve—p 119

Presse Médicale, Paris

July 27 XXIV No 42 pp 329 336

33 The Remote Results of War Wounds of the Chest (Les suites eloignees des blessures pleuro pulmonaires par projectiles de guerre) Denechau—p 329
34 Technic for Tracheotomy in Adults H Luc—p 330
35 Spring Device for Reduction of Fractured Jaw (Appareil pour la reduction mediate des fractures des maxillaires) C Blanc—p 331
36 *Cholesterin Content of the Blood in Holland and in the East Indies (Echanges cholesteriniques et pathologie de la race) C D de Langen—p 332

36 **Cholesterin as a Factor in Cholelithiasis**—De Langen's studies of the cholesterin content of the blood in Holland and in the Dutch East Indies have shown that there is a marked difference between Europeans and the natives of the Dutch Indies in this respect In the latter the cholesterin content of the blood is only about half the European figure, while that of the bile is also extremely low In Japan the corresponding figures are said to be about midway between those in the Dutch Indies and in Holland De Langen was led to this research by noticing the extreme rarity of gallstone trouble in the East Indies When gallstones are found they are not the cholesterin stones of Europe, but are composed principally of calcium bilirubinate thus resembling the *calculs hemolytiques* described by Chauffard In a group of 5 800 sick natives of the islands there were only five cases of diabetes mellitus while in a corresponding average group at the Groningen Hospital in Holland the year before, he had found twenty-two diabetics among 1 200 patients In Japan also glycosuria is very rare, and it is so mild that, as a recent Japanese writer has said it does not deserve the name of diabetes De Langen mentions further that the arterial pressure is low among the natives of the Dutch East Indies He does not attempt to decide whether the physiologic hypocholesterinemia of the natives is the result of their diet or is a racial peculiarity nor whether this low cholesterin content of the blood has anything to do with beriberi

Progrès Médical, Paris

July 20 XXXII No 14 pp 117 128

37 Syphilis as a Factor in Rheumatism Sulphur and Mercury in Treatment Loeper Bergeron and Vahram—p 117
38 The Indemnity as a Factor in Traumatic Neuroses (La notion de consolidation dans les nevroses traumatiques des sinistres du travail et des blesses de guerre.) H Verger—p 118
39 Bacteriologic Study of Kephir A Sartory—p 122
40 Continuous Progressive Gentle Traction by Simple Means in Treatment of Stiff Joints and Muscular Contracture J Regnault—p 123

August 5 No 15 pp 129 156

41 *Staphylococcus Septicemic Meningitis G Etienne and A. Grosjean—p 129
42 Case of Gastric Cancer with Metastasis in Cerebellum and Terminal Meningitis D De Fortunet and A Cade.—p 132
43 Reaction in Genital Organs to Vaccination Against Typhoid and Paratyphoid (Reactions orchi epididymo funiculaires consecutives a la vaccination antityphoidique et antiparatyphoidique) A Satre—p 134

37 **Syphilis as Factor in Rheumatism**—This article describes 41 cases of joint rheumatism developing in syphilitics and yielding as a rule to measures directed against the syphilis Only one joint was affected in 3 cases, the trouble resembling ordinary white swelling Several joints were involved in 8 cases In 11 cases there was an arthritis without effusion and in 10 the joint trouble was of the deforming rheumatism type In 4 there was merely pain in the joint without deformity or nervous reaction It seems plausible to assume that the rheumatism would not have developed in these young men if it had not been for the syphilitic soil This assumption is confirmed by the benefit under mercury, especially when combined with sulphur

41 **Staphylococcus Meningitis**—The man of 46 had *Staphylococcus albus* septicemia, and was apparently on the way to recovery when secondary meningitis developed which soon proved fatal The germ was in pure culture, and rabbits inoculated with it developed a similar septicemia

Revue Médicale de la Suisse Romande, Geneva

July 20 XXXVI No 7 pp 385 448

44 *Cerebrospinal Meningitis at Geneva H Mallet—p 385
45 *Uterine Cancer and Radium L Aubert—p 401
46 Rales Propagated to Other Side of Chest as Source of Error in Auscultating the Tuberculous F Heim and M Jeanneret Minkine—p 411
47 Acute Sensory and Motor Lumbar and Sacral Polyradiculitis Following Furunculosis Roehrich—p 422
48 Hydropyonephrosis from Supernumerary Artery C Perrier—p 427
49 Nephrectomy for Hypernephroma C Perrier—p 428
50 Fixation of Painful Sagging Liver (Cas d'hepatopexie) C Perrier—p 430
51 Incision in Lumbar Region to Explore the Kidney Before Venturing to Remove Its Tuberculous Mate (Lombotomie exploratrice comme moyen de diagnostic dans un cas de tuberculose renale) C Perrier—p 432

44 **Epidemic Cerebrospinal Meningitis**—Mallet recalls that the first description of this disease was published by Vieusseux of Geneva Switzerland, in 1806 By a curious coincidence there has been no epidemic there since until this year Mallet reproduces the original description of 110 years ago, the disease was then entitled *fievre cerebrale ataxique* His analysis of the recent cases confirms the importance of healthy carriers in spreading the disease He found only one carrier in the environment of his own cases and he isolated this healthy person and had him rinse out his nose repeatedly and take potassium chlorate internally By the next day, no further meningococci could be found in the nasal secretions In his fatal cases necropsy disclosed pneumonia in twelve and acute pericarditis in three There were two cases of cerebral deafness among the survivors, and one case of mental disturbance during convalescence The only certain sign is the discovery of the meningococcus in the cerebrospinal fluid on lumbar puncture The mortality of the disease has been materially reduced by serotherapy Its results are better the earlier it is started the larger the doses and the shorter the intervals In infants the disease is often difficult to differentiate and it is liable to assume a chronic form If the foramen of Magendie becomes obstructed the serum must be injected directly into the lateral ventricle

45 **Uterine Cancer and Radium**—Aubert agrees with those who regard radium as a useful palliative in inoperable cases and as an adjuvant to thorough surgical measures Degrais insists that an inoperable cancer always derives some benefit from the radium exposures

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 29 XLVI No 31 pp 961 992

52 *Acute Poliomyelitis in Switzerland (Die Heine Medin sche Krankheit in der Schweiz mit bes Berucksichtigung einer Epidemie im Kanton Luzern im Herbst 1915) J Andoussieur—p 961
53 A Fungus as Dressing Material (Die Anwendung einer Flechte—Bryopogon jubatus—als Verbandstoff) B Galli Valerio—p 981
54 Fungoid Mycosis in Woman Fatal in Three Years J Weber—p 983

August 5, No 32, pp 993 1024

55 *The Spirochete of Febrile Jaundice and Production of Antiserum (Eine kurze Mitteilung über die Entdeckung des Erregers—Spirochaeta ictero haemorrhagiae nov sp—der sogen Weil'schen Krankheit in Japan und über die neueren Untersuchungen uber die Krankheit) R Inada and others—p 993

56 *Measurement of the Elasticity of the Arteries, and Its Clinical Importance (Versuche über die elastische Kapazitat der Arterien) A Bühler—p 1003

52 **Infantile Paralysis in Switzerland**—Androussieur reviews the history of acute anterior poliomyelitis, and reports a recent epidemic at Lucerne The first case was in a woman of 32, the second in a man of 41 whose healthy wife had nursed the first case The disease came on with sudden onset and high fever in both and simulated Landry's paralysis, proving fatal in six and four days Eight other cases followed, all in children over 5 Some communication between the families was known in a number of the cases through healthy carriers, although they were in scattered farms But in five cases no epidemiologic data could be discovered The funeral of the first woman that died was largely attended and the fact that no more cases developed confirms Wickman's statements that the susceptibility to the disease is slight as a rule The period of incubation was from two to seven days in all but two cases, in these it seemed to be thirteen days and five weeks In three families two children were affected In the seventy-nine cases at Zurich in the last twenty-five years the youngest patient was 4 weeks, the oldest 12 years old Androussieur lists the various large epidemics on record, including Norway, 1905, 918 cases, and 1906, 334 cases, Sweden, 1906, 379, American, New York, 1907, 2,500, Massachusetts, 236, 1908, Massachusetts, 136, Australia, 1908, 135, Austria, 1908-1909, 1 393, Germany, 1909, 2,140, Nebraska, 1909, 200, and Paris, 1909, 100 In prophylaxis he urges strict isolation and disinfection at the bedside, with terminal disinfection All in the environment should be watched and any with slight fever or sore throat should be isolated especially children Scrupulous cleanliness and ample ventilation should be enforced All the persons in the house should gargle systematically and rinse out the nose and mouth with some disinfectant, such as 0 5 per cent potassium permanganate, 0 5 per cent dilute phenol solution, or neutral hydrogen dioxid The children in the family should be kept at home for at least eight days and not be allowed to return to school unless they keep entirely well The child that has had the disease should not be allowed to return to school until at least three weeks after definite recovery

55 **Spirochete of Febrile Jaundice in Japan**—Inada and his assistants give an illustrated description of the spirochete they have isolated from cases of the disease in Japan which presents the same clinical picture as that of Weil's disease in Europe Patients were treated with serum from convalescents or an immune serum derived from immunized horses The horse serum was given in twenty-six cases After injection of 40 or 60 c c of the immune serum the spirochetes disappeared from the blood in twenty-four hours One horse bore the subcutaneous injection of 800 c c of a virulent culture containing from twenty to thirty spirochetes in one field A rabbit could be protected by injection of 0 01 c c of this horse serum against infection from 1 c c of a culture with 10 spirochetes to the field Experiments were also made with goat serum In clinical cases the spirochetes are not numerous in the blood, but if guinea-pigs are inoculated in the peritoneum with some of the blood, the spirochetes proliferate rapidly and induce a characteristic disease They found that the spirochetes could penetrate the intact skin and can also cause the disease when swallowed The spirochetes seem to live in stagnant water and damp ground and there does not seem to be any intermediary host They are eliminated in the excreta, in the urine, mostly toward the end of the third week, but in some cases up to the sixtieth day

56 **Elasticity of the Arteries**—Buhler examined thirty-eight arteries from twenty cadavers, having devised an apparatus to measure the elasticity The formulas and figures cited show the mathematical-physiologic laws regulating arteriosclerosis, etc

Gazzetta degli Ospedali e delle Cliniche, Milan

July 30, XXXVII, No 61, pp 945 960

57 *Pulsation and Murmur to the Right of Umbilicus as Sign of Pancreas Lesion or Aneurysm of the Celiac Artery (Su di un sintoma sconosciuto nelle lesioni del pancreas e nell'aneurisma del tronco celiaco) G Onano—p 948

August 3 No 62, pp 961 976

58 *Improved Technic for Exclusion of the Pylorus (Esclusione del piloro con introflessione della sierosa nel lume enterico) G Onano—p 965

57 **Differentiation of Pancreas and Gallstone Trouble**—Onano had a patient referred to him for operative removal of gallstones as the man was suffering from colics and jaundice In palpating the liver and gallbladder he noted an abnormal pulsation and sensation of friction, with a murmur very distinct on auscultation, applying the stethoscope a fingerbreadth to the right of the umbilicus These findings were peculiar and not to be detected in other patients with gallstones or in the healthy This suggested that the pain and jaundice might be the result of compression of the common bile duct from some tumor, especially as there was no fever and hence acute inflammation could be excluded At the same time the idea of a tumor did not harmonize with the periodical return of the colics about once a week, or with what seemed to be an enlarged gallbladder, which could be palpated under the edge of the large lobe of the liver Roentgenoscopy was negative, but this might be explained by the gallstones being formed of cholesterin The abdomen consequently was opened The gallbladder was found normal and the trouble was found to be a large tumor in the pancreas In a second similar case the compression inducing the recurring colics and jaundice was the work of an aneurysm in the celiac artery

58 **Exclusion of the Pylorus**—Onano utilizes the power of adhesion possessed by the peritoneum to exclude the pylorus He has experimented with it on animals and found the results superior to other technics, while it seems to be simpler and takes less time, while no foreign body is left in the tissues He makes a longitudinal incision, 5 or 6 cm long in the tract between the stomach and the duodenum, and turns in the walls so that the serous membranes of the two walls are brought into contact inside the intestine for a certain stretch To promote formation of adhesions he abrades the visible mucosa that is accessible when the intestine is thus incised, and he takes a few stitches to bind together the introflexed serosa and press it against the abraded mucosa The serosa beyond is sutured over the whole, and this in turn is protected by suturing a pedunculated wisp of omentum over it Dogs operated on in this way, with a supplementary gastro-enterostomy, bore the operation perfectly and the new opening seems to functionate perfectly None of the animals has been killed yet, but the exclusion of the pylorus seems complete

Policlinico, Rome

July 30, XXIII No 31, pp 943 966

59 Bullets Fired Base First? (Gli austriaci rovesciano anch'essi volutamente i proiettili di fucile nella cartuccia?) R Alessandri—p 943

60 A Field Hospital (L'ospedaletto da campo da 50 letti) T Pontano—p 946

July Surgical Section No 7, pp 193 224

61 *Experimental and Clinical Study of Ligation of Coronary Arteries and Veins (Legatura separata e simultanea delle arterie e delle vene coronarie del cuore) L Dominici—p 193 Concluded

62 Fracture of the Tuberosity of the Tibia (Contributo alla patogenesi della malattia di Schlatter Osgood) T Costa—p 215

63 Incision of Kidney Hilus to Extract Concretions (Contributo alla chirurgia renale pielotomia) P Amorosi—p 219

64 Stab Wounds of the Kidney, Reimplantation of Severed Portion G Serafini—p 222 Continued

61 **Ligation of Coronary Arteries and Veins**—Dominici gives the details of forty-six experiments in this line on dogs In six other dogs the effect of severing the vagus or paralyzing it with atropin was studied further He has found in the literature eighteen cases in which coronary vessels had to be ligated in the course of operations A branch of the artery was ligated in twenty instances and a vein once He summarizes them all, including Bradbury's case published

in The Journal, 1913, lxi, 1809 One of the patients succumbed to his wound on the table, one died the next day and three within the week The others left the hospital in good condition One died from tuberculosis five years later, and one is known to be in good health after four years Necropsy in two cases in which the severed descending branch of the coronary artery had been closed with a stitch showed that no harm had resulted, one of the men surviving for five years On the other hand, in the two cases in which this artery was ligated, both patients died Ligation of the ventricular collateral branches of the left coronary artery seems to do no harm, at most there results merely a focus of fatty infiltration Ligation of other portions of the left coronary is always dangerous, but ligation of the great coronary vein seems to be harmless Ligating at the same time the vein and the artery reduces materially the injury from ligation of the artery alone This is probably due to extensive anastomoses This assumption is confirmed by the survival for three hours of one dog after ligation of both coronaries and the great coronary vein The injury from ligation of one of the coronary arteries is enhanced by the mechanical obstacle of the ligature, impeding the action of the myocardium There is every reason to assume that the results of experiments on dogs can be applied in estimating the probable effect of such procedures on man

Brazil-Medico, Rio de Janeiro

July 8 XXX No 28 pp 217 224

65 *The Campaign Against Snake Poisoning in Brazil (A lucta contra o ophidismo no Brazil) J Pinto —p 217
66 *Primary Localization of Diphtheria in the Conjunctiva of Left Eyelids. (Caso de localisaçao primitiva da diphtheria na conjunctiva) N Da Rocha —p 219

July 15 No 29 pp 225 232

67 Fecundation of Flagellate (Fecundação n um flagellado de vida livre Prowazekia Cruzi —Hartmann & Chagas) C Chagas and M Torres —p 225
68 Case of Actinomycosis Tenth Recorded in Brazil O Torres —p 225

65 **The Campaign Against Snake Poisoning in Brazil**—Pinto relates that the state of S Paulo in southern Brazil leads the world in its efforts to combat snake poisoning—ophidism An institute was organized for the purpose of procuring antitoxins for the venom of snakes and their application in suitable cases The antitoxins are supplied free and delivered also without charge to any point in the state reached by railroad The number of ampules thus distributed has amounted to 5,000 a year in recent years S Paulo is the only state that keeps accurate records of its cobra bites, but estimating them for the whole country on the basis of its statistics shows that there must be on an average about 4 800 deaths from cobra bites and 19,200 accidents from this cause annually Pinto urges the other states to organize relief stations where the antitoxin can be promptly administered and where venom can be taken from cobras and forwarded to the S Paulo institute, which will return the equivalent in antitoxin By this means, with very little expense each region could be equipped to combat cobra bites effectually V Brazil is in charge of the S Paulo institute, and he has recently published a book 'Defense Against Ophidism describing poisonous snakes in general and those of Brazil in particular, with colored plates, describing also the clinical picture which follows their bites and the means of prophylaxis Chief among these are leather shoes and leggings, as 75 per cent of all bites are in the legs A bounty on cobras is also a useful measure, but only S Paulo offers it The mussurana, *Oxyrhopus cloelia,* destroys poisonous serpents, and it should be protected and its services utilized in this way It seems to be peculiar to Brazil [The dictionary defines mussurana" as a kind of field mouse, but Oxyrhopus is the name of a family of snakes more or less poisonous, but not seriously harmful for man] At the institute it has been found that the snake poisons of Brazil can be classified in four groups and a special antitoxin is prepared from native snakes for each group From 10 to 20 c c of the antitoxins are injected at once and repeated in six hours, unless marked improvement is evident. Brazil now has records of 1,058 applications of the antitoxin That prepared in France from the venom of serpents from British India is not effectual against Brazilian snake bites

66 **Localization of Diphtheria on the Conjunctiva**—Da Rocha's patient was a child of 2 whose left eyelids were swollen and hard, and the inner side was covered with false membranes, but there was no purulent secretion The aspect suggested diphtheria, but no case was known in the region Local instillation of antitoxin and injection of 10 c c were followed by the dropping off of the false membranes the next day, and the gradual subsidence to normal of the eyelids The instillations were kept up and a second injection given Nothing but staphylococci could be grown from the false membranes and the nasal secretions at this time, but two days later the condition grew worse again and diphtheria bacilli were then found in pure cultures Antitoxin was then injected in small doses, 3 c c on alternate days, to ward off any tendency to anaphylaxis, and recovery was soon complete The other eye kept normal throughout and the general health did not seem to suffer much

Siglo Medico, Madrid

LXIII No 3268 pp 481 496

69 The Nuclear Structure of Red Blood Corpuscles (Investigacione microscopicas acerca de la llamada estructura nuclear de los eritrocitos del hombre y de los mamiferos) F Mas y Magro —p 482 Continued
70 Diarrhea in Children (Tratamiento de las diarreas en los niños) C S de los Terreros —p 489

Prakticheskiy Vrach, Petrograd

XV No 20 21 pp 169 180

71 Case of Echinococcus Disease of the Liver Complicated with Ascites (K kazuistik exinokokka petcheni, oslozhnennago vodyankoi) V M Volkovitch —p 169

No 22 23 pp 181 192

72 Myxedema in Two Children B I Morgulis —p 183 Commenced in No 20

Russkiy Vrach, Petrograd

XV No 21 pp 481 504

73 *Similar Organic Heart Defect in Six Children of One Family (Slutchai semeinago rasprostraneniya serdetchnikh porokov) N E Kusheff —p 481
74 *Action of Camphor and Menthol on Coronary and Peripheral Vessels (Dieistvie kamphori, borneola i mentola na vienetchnie i peripheritcheskie sosudi) N P Likhatcheva —p 483
75 *Experimental Appendicitis Induced by Way of the Blood N F Mordvinkin —p 485
76 *Suppurating War Wounds of the Knee Z I Ponomareff —p 486 Commenced in No 20
77 Extension Walking Device for Fracture of Long Bones N A Gurevitch —p 495
78 Splint for Compound Fracture of Humerus A N Abramova —p 497
79 Poisoning with Methyl Alcohol and Its Detection in Alcoholic Beverages N N Gromoff —p 498

No 22 pp 505 528

80 *Asphyxiating Gases in Warfare N A Kruglevsky —p 505
81 *Grasping Movement as Pathologic Reflex (O reflex skhvativaniya) A E Yanishevsky —p 510
82 *Action of Poisons on the Vessels in the Brain (O dieistvie yadov na sosudi golovnogo mozga) V I Berezin —p 513
83 *Salvarsan and Similar Preparations Specific Treatment for Relapsing Fever (Lietchenie vozvratnago typha salvarsanom *neosal*varsanom i arsenobenzolom Billon) I I Iversen —p 518
84 Action of Infantry Bullets (O dieistvie ostrokonetchnoe maloka libernoe puli na russko germano austrieskikh frontakh) G V Fovelin —p 520

73 **Familial Heart Defect**—There has been no postmortem in the family described, but six of the children presented an apparently identical syndrome and three of them have died suddenly The three surviving show the same symptoms in various degrees One child died young, the others all reached adult age

74 **Action of Camphor and Menthol on Coronary and Peripheral Vessels**—Likhatcheva found from her experiments on the ear and heart of rabbits that camphor, borneol and menthol dilate the coronary and peripheral blood vessels in dilutions of 1 2,500 and 1 5,000 Camphor is the weakest of the three In dilutions a tenth weaker than this there is in the peripheral vessels first temporary constriction followed by gradual dilatation The findings are tabulated for comparison

75 **Experimental Appendicitis**—Mordvinkin injected a culture of staphylococci directly into a vein in the ear of rabbits, after ligating the appendix or cutting it between two ligatures The normal appendix proved able to eliminate the bacteria, thus reaching it in the blood, passing them on into the lumen of the intestines without harm if the appendix was permeable If the appendix was obstructed, the staphylococci reaching it by way of the blood soon set up inflammation in it, with complicating peritonitis

76 **Suppurating War Wounds of the Knee**—Ponomareff decries any attempt to probe or drain the cavity of the knee joint when there is an infectious process in it or such is even suspected He advocates absolute rest, immobilizing with plaster or splint If the suppuration keeps up, however, he incises and drains the anterior half, following this by incising and draining the posterior half if this alone does not help If nothing avails, excision of the joint or amputation of the femur must follow promptly if the infection shows a tendency to spread to adjacent regions

80 **Asphyxiating Gases in Warfare**—Kruglevsky analyzes the pathologic, pharmacologic and clinical facts observed and comes to the conclusion that the gases used in warfare at present are mainly chlorin and bromin

81 **Grasping Reflex with Brain Tumors**—Yanishevsky writes from Odessa to call attention to the way in which persons with brain tumors and other affections of the depths of the brain respond like very young infants by grasping any object that touches the fingers He calls it the grasping reflex, and gives illustrations of the prompt way in which the fingers curl around a stick brought in contact with them, when otherwise the patient may be unable to flex the fingers One patient with a tumor in the right frontal lobe and left paresis was unable to bend his fingers or open the hand voluntarily, but if a stick touched the volar side of the hand or the open hand was flicked with a towel the object was grasped Robinson and Preyer have studied the similar phenomenon in infants, and found it pronounced up to the age of 84 days Yanishevsky noted this pathologic reflex in cases of spastic paralysis agitans, diffuse cerebral arteriosclerosis with diplegia and pseudobulbar phenomena, and in the last stages of paralytic dementia, but never in capsular or cortical brain affections The reflex is particularly frequent and pronounced with tumors of the frontal lobe In this region of the brain there must be normally some inhibiting center for the grasping reflex The deeper a lesion in the brain, the more the reflexes resemble those in very young infants

82 ***Action of Poisons on the Vessels of the Brain***—Berezin experimented with rabbits and large fish, pikes, finding that the cerebral vessels in both responded about the same to the action of various poisons The alcohols dilate the vessels, the effect being most pronounced the higher the molecular weight of the alcohol Various hypnotics, including chloral, also cause dilatation of the vessels in the brain It was most pronounced with hedonal Narcotics such as ether, chloroform and acetone, also induce dilatation, weakest with the last mentioned Dilatation was also produced by caffein, camphor, atropin, antipyrin, quinin and salicylic acid The cerebral vessels also respond to vasoconstricting substances, such as epinephrin, but not as actively as the peripheral vessels The latter are affected by even extremely dilute solutions to which the cerebral vessels scarcely respond On the other hand, the action of the vasodilating substances is much more pronounced on the cerebral than on the peripheral vessels, and the cerebral vessels are also affected by such poisons as morphin, atropin, etc, which do not affect the vessels of other regions

83 **Salvarsan Specific in Relapsing Fever**—Iversen's experience has been that the spirochetes disappeared entirely from the blood in from four to eight hours after an intravenous injection of from 0 4 to 0 6 gm salvarsan in 100 or 150 c c normal salt solution The patients were discharged from the hospital in from five to eight days, while with other methods of treatment the hospital had to keep them a month or two He adds that equally good results were obtained with similar preparations of other makes

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 5 II, No 6, pp 453 520

85 Influence of the Pitch of Sounds on the Reflex Response of the Membrana Tympani (Over den invloed der toonshoogte van den geluidsprikkel op de uitkomst van den tensorreflex) M Ono—p 457

86 Electrograms from Fragments of the Frog Myocardium (Over eenige electrogrammen van kikkerhartspierfragmenten) H C Rumke—p 462

87 Mucilaginous Seeds as Laxatives (Het zaad van Ocymum basilicum L—selasih—en andere slijmerige zaden als laxeermiddel) E C van Leersum—p 478

88 Anomalies in the Structure of the Frontal Sinus (Moeilijkheden door variaties en den anatomischen bouw der voorhoofdsholten) A de Kleyn—p 488

89 Pseudo Glaucoma W Koster—p 491

Ugeskrift for Læger, Copenhagen

July 20, LXXVIII, No 29, pp 1197 1250

90 *Research on Occult Hemorrhages (Undersøgelser over okkult Blødning II Kliniske Resultater ved Anvendelse af Benzidinproven) J P Gregersen—p 1197 Concluded in No 30

91 *Etiology of Aortic Valvular Defect (Etiologien til Aortaklappefejl uden samtidig anden Klappefejl) G Fløystrup—p 1214

90 **Occult Bleeding**—In this instalment of his report Gregersen reviews his clinical experience as compared with the findings of the tests for occult hemorrhages Only one among 147 patients free from signs of ulceration in the alimentary canal gave a positive response to the tests for occult bleeding This proportion of error of only 1 147 is a fine showing for any clinical test In 18 other cases there was once one solitary positive reaction in a long series of negative responses but these 18 solitary reactions do not count among the nearly 1,300 negative findings in the stools He found the benzidin test so delicate that it gave a positive response even after ingestion of 1 gm blood by the mouth The findings were constantly negative on applying the test to 135 specimens of feces from 18 patients with heart disease, and to 30 specimens from 4 patients with nephritis and 51 specimens from 3 with cirrhosis of the liver This group confirms the general experience that even with such congestion in the abdominal organs as accompanies these three affections, no blood finds its way into the lumen of the bowels The findings were also negative in 35 specimens from 4 patients with pronounced gallstone trouble, but in a fifth case there was a faint positive response in 2 specimens while 23 were negative This patient soon died from perforation of the wall of the common bile duct by a stone A positive response thus in cholelithiasis may suggest ulceration and impending perforation

His experience in 25 cases of chronic gastritis with achylia was also constantly negative, only one patient gave one faint positive response with 13 negative The test was reliable also even when the outside of the lump of feces became coated with bloody mucus as it reached the lower part of the bowel Applying the test to a scrap from the center of the lump gave a negative response in all but one of 102 examinations of stool from 11 patients with severe constipation plus colitis His report on his 34 cases of gastric ulcer is not completed in this instalment although he mentions here that the tests for occult blood were instructively positive in 30 of the 34 The first instalment was summarized in these columns on page 84

91 **Etiology of Isolated Aortic Valvular Trouble**—Fløystrup analyzes here the necropsy findings in 42 cadavers with lesions of the aortic valve, the other valves apparently intact It was evident, he says, that arteriosclerosis was responsible for the aortic trouble in 19 per cent while there were signs of acute infectious endocarditis in 23 8 per cent No causal factors could be incriminated in 60 per cent of the pure insufficiency cases, while 80 per cent of the pure stenosis cases were due to arteriosclerosis and 75 per cent to syphilis in the mixed type In 11 9 per cent of the total 42 cases there was a history of acute articular rheumatism and the age averaged about 38 In the arteriosclerosis cases the ages ranged from 56 to 83 while the syphilis patients were between 40 and 70 years old Death followed not very long after the first symptoms of aortic trouble in most of the cases, but in one the interval had been ten years

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CHRONIC MOUTH INFECTIONS IN THEIR RELATION TO GENERAL DISEASES A SYMPOSIUM

THE PREVALENCE OF CHRONIC MOUTH INFECTIONS AND THEIR MANAGEMENT *

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An examination of the histories of 498 cases of chronic arthritis in the service of Dr Frank Billings at the Presbyterian Hospital, Chicago, furnishes valuable information on the incidence of chronic mouth infections Of this number 332 had careful Roentgen-ray mouth examinations, 1,132 periapical infections ranging from small areas of rarefaction to gross bone lesions were recorded, 994 of the teeth involved had been treated, with varying degrees of root-canal fillings, and 138 teeth showed no evidence of root-canal treatment The percentage of patients in this group showing definite Roentgen-ray evidence of chronic alveolar abscess was 89, 1,342 teeth were involved in varying degrees of pyorrhea, the diagnosis being based largely on the Roentgen-ray evidence of peridental membrane destruction Seventy-six per cent of the patients showed well defined pyorrhea, many of them well advanced with marked suppuration

A second group of patients from Dr Billings' service, seventy in number, excluding all arthritics, showed chronic alveolar abscess in 74 per cent The list included myositis, neuritis, goiter, asthma, nephritis, etc Forty-nine per cent had pyorrhea A third group taken from 150 private office records showed chronic alveolar abscess in 69 per cent

In determining the incidence of chronic alveolar abscess in patients suffering from chronic disease, one should limit his investigations to adults Other foci of infection are more likely to be responsible for chronic disease in young people in whom the tonsil undoubtedly is more often responsible than the teeth

While pulpless teeth are met with in young people, the percentage is quite low compared to those of middle life This is more largely true of pyorrhea than chronic alveolar abscess Pyorrhea before twenty-five years of age is comparatively rare The danger both from chronic alveolar abscess and pyorrhea decreases with advancing age, and the loss of teeth One may regard, therefore, the period from 25 to 60 as the period of greatest danger

An edentulous jaw or partially edentulous jaw, where the remaining teeth are free from infection, does not absolve the mouth from responsibility The removal of part or all of the teeth involved in a chronic infection may serve to clean up the mouth of a patient whose tissues elsewhere have suffered permanent harm, and without effecting a cure The fact that a mouth at the time of examination may be free from infection does not exclude such a mouth from responsibility any more than the removal of infected teeth insures the repair of permanently damaged joints or other structures

Such an argument, however, does not absolve one from the responsibility of removing infection whenever it is discovered, whether in recent or long standing cases The 718 cases cited illustrate the incidence of chronic mouth infection in three groups of cases The first group of 498 cases were all chronic arthritics The second group of seventy were chronic infections, none of them suffering from joint lesions The third group of 150 were office cases, referred for mouth examination because of some systemic disease

In the first group 89 per cent had alveolar abscess, the second group 74 per cent, the third group 69 per cent

The appearance of 89 per cent of chronic alveolar abscess in so large a group of hospital patients is probably more than presumptive clinical evidence, particularly when viewed in the light of results following treatment and animal experimentation

In the light of our present knowledge these facts must constitute an eloquent predication An interesting feature of our study of the frequency of chronic mouth infections was the discovery that the poorer classes had relatively fewer chronic abscesses than the middle and well-to-do classes The reason is not difficult to find—the poor people, including foreigners, usually have aching teeth treated by early extraction

Considering the manner of infection, chronic alveolar abscess may be classified as primary and secondary primary, those in which infection occurs through the root canal from an infected pulp, from faulty technic in root canal treatment, from a failure to adequately seal the root canal and pulp chamber in the introduction of permanent filling materials Those infections classed as secondary are blood borne, the predisposing cause being a lowered resistance in the periapical tissue brought about, first, by the careless use of arsenic as a devitalizing agent, and, secondly by the indiscriminate use of irritating agents in the treatment of root canals The irritation set up in the tissues at the apex of the root results in a stimulation and multiplication of the fixed tissue cells, and the end result is scar tissue, which interferes with normal circulation The resistance of such areas is relatively low A periapical infection in a vital tooth can scarcely occur These secondary infections may be largely represented by the principle of asepsis rather than antisepsis More good and less harm is accomplished by surgical cleanliness than by the use of antiseptics and disinfectants

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* Chairman s address read before the Section on Stomatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

The relative danger of chronic abscess compared to pyorrhea is difficult to measure While a closed suppurating cavity is more serious than an open one, the quantity of infection is apt to be very much greater in pyorrhea

Pyorrhea may be looked on as the lesser of two evils, but not to any degree of tolerance

TREATMENT

The object of treatment is twofold first, to save the teeth, and second, to rid the mouth of infection Whatever form of treatment may be undertaken, nothing short of restoring the tissues to a state of health can be considered satisfactory

A discussion of the various methods employed in the treatment of pyorrhea would for the present purpose be without profit No fault can be found with an honest, intelligent effort to save teeth involved in a chronic suppurative pericementitis

In carefully selected cases in the mouths of patients who are in a state of good health, one may properly undertake the treatment of teeth which are not seriously damaged Where a large portion of the peridental membrane has been destroyed, no permanent cure need be expected The process of repair in this class consists in the formation of connective tissue—scar tissue—in which the circulation of blood is very limited and which does not form a biologic union between the cementum and alveolar process No permanency need be expected of repair of this type

The fibers of the peridental membrane are attached to the cementum by the cementoblasts Destroyed by a chronic suppurative pericementitis, the cementoblasts probably do not regenerate to any appreciable extent The cementoblasts being destroyed, there is no hope of union between the cementum and surrounding tissues, except by scar tissue There is no continuity of tissue in this type of repair, and reinfection is likely to follow

Well selected cases in the hands of specially trained men undoubtedly yield gratifying results, but the number of men thus qualified form a small percentage of the dental profession, and a great many people are afflicted with chronic suppurative pericementitis,

Recently emetin has been rather extensively advocated and used in the treatment of this condition on the assumption that the endameba was the essential cause This has been based on a rather far fetched analogy No one to our knowledge has demonstrated by animal experiments, or even convincing clinical evidence, that the endameba bears anything more than perhaps a symbiotic relationship to the infection While we cannot at this time enter into a detailed discussion of the subject, we cannot refrain from expressing the opinion that the use of emetin as an experiment has been a failure

The treatment of chronic alveolar abscess falls naturally into two groups (1) conservative, and (2) radical

The first type saves the tooth, and, theoretically at least, removes the infection The second type removes the tooth and is the only method which removes infection in all cases In the first type there is involved the opening of each root canal to its apical foramen, and complete disinfection and filling with a neutral substance which shall seal the canal at the foramen, and shall not be affected by moisture or cause irritation to the surrounding tissue Theoretically these are the requirements Practically they are realized in a minor degree

Allowing for natural conditions and body defenses, probably not more than 25 per cent of all root canals treated may be considered safe This statement embraces general practice and does not particularize the few teeth treated by a few specialists

At present there are not enough dentists to care for the people, and while the poor and ignorant have been automatically excluded in the past, they must now be dealt with, because of our new knowledge of chronic infection, on the same basis as the better classes

Perhaps not over 10 per cent of dentists may be considered competent to undertake difficult root canal operations Surely not over 10 per cent of the people can afford to pay for the services of a dentist who has acquired high skill in root canal technic If, then, there are too few dentists to take care of all the people, and all the people must be cared for in the matter of infections, and only 10 per cent of the dentists may be called on to save teeth involved in chronic infections, and only 10 per cent can afford the services of a specialist, after discounting the successes of specialists in root canal technic, one is confronted with the practical fact that most of the people are seriously involved

One may postulate that only certain chronic infections are dangerous, but who shall discriminate and say, "This chronic abscess or pyorrhea is harmless and this one is harmful"? When in doubt and the patient is ill, which shall be sacrificed, the tooth, or a possible opportunity for the patient's recovery? No doubt teeth are being extracted which do not bear a causal relationship to general infection, but it certainly is the lesser of two evils to remove the tooth In so doing one is at least performing a reasonable service in an attempt to bring back health, and whether a patient is well or ill it is never justifiable to allow any infection to remain anywhere in the body which may be removed with as little loss or discomfort as the extraction of a tooth The functional value of an infected tooth cannot compensate for the harm it may cause

Every tooth should be saved which may be made to serve the patient better than an artificial substitute, provided we interpret the quality of service in the light of the health and comfort of the patient Conservative dentistry is strongly urged when its objective is general physical well-being Saving teeth which perpetuate chronic infection is not conservative dentistry, but destructive dentistry The chief object of dentistry must always be the maintenance of health The teeth must not be looked on as independent structures but as interdependent structures Viewed as tissues intimately associated with health and disease, the teeth and their adnexa cannot be dealt with in the abstract One may undertake conservative measures in the mouths of patients who are in good health and whose general body defenses are good Such cases, however, must be checked up and not dismissed until the teeth in question are either free from infection, or, in case of failure of treatment, have been removed While at a given time a patient may be in a state of health, one may not presume on good health, and permit conditions to exist which he would not permit in the mouths of those in a state of ill health

Because of general serious conditions one feels obliged to extract teeth which might be saved if the health of the patient would justify the necessary time for treatment Teeth may always be extracted, and every reasonable effort should be made to save them when local conditions indicate that they may be saved, and the patient's interests are in no way jeopardized by the process

While the Roentgen ray is relative, not absolute, we are dependent on it for our estimate of tissue loss both in chronic suppurative pericementitis and chronic abscess The interpretation of Roentgen-ray films is a fine art, but no amount of experience will save one from occasional surprises and disappointments A large granuloma, for example, may involve only the spongiosum, and where the external and internal bony plates are thick and dense, the Roentgen ray will not define the area

To differentiate between an active infection and a rarefied area which has been disinfected and is undergoing repair is difficult or even impossible, especially in a dense field

The relation of tooth roots to rarefied areas may quite obscure a lesion where the exposure has been made from only one angle Even though unsatisfactory at times, the Roentgen ray is an indispensable factor in the diagnosis of bone lesions associated with the teeth, and the percentage of failures or mistakes in diagnosis is relatively small

The very fact that clinical experience demonstrates occasional positive and negative errors only serves to make one careful not to overlook the danger of doubtful cases The apparent size of a diseased area bears no relation whatever to its possible danger Chronic infections are dangerous because of quality, not quantity When conservative treatment is undertaken, the Roentgen ray should be used, first to demonstrate successful root-canal fillings, and second, to check up on the process of repair Partially healed foci must be looked on with suspicion Residual infection, though limited in extent, following either therapeutic or surgical measures, may be quite as dangerous as before treatment No dependence whatever may be placed on subjective symptoms Through active therapeutic measures a chronic alveolar abscess with a discharging sinus may quiet down, the sinus close, and the overlying tissue become normal From clinical evidence alone such cases have been classed as cured In the absence of a roentgenogram no definition of repair can be made Frequently these cases do not heal, and are much more serious than before treatment, the treatment rarely serving to convert an open infection into a closed one

SUMMARY

1 The incidence of chronic mouth lesions in a group of over 700 carefully analyzed cases, showing percentages ranging from 69 to 89 per cent, must be looked on as more or less serious evidence

2 The overwhelming majority of chronic abscesses being associated with previously treated root canals serves to emphasize the importance of root-canal technic

3 Both in diagnosis and in determining the extent of tissues lost, the Roentgen ray is paramount

4 The involvement of the peridental membrane is the crux in deciding between conservative and radical treatment

5 Faulty root-canal technic, the careless use of arsenic as a devitalizing agent, and irritating drugs in the treatment of root canals are strong predisposing factors of chronic alveolar abscess

6 In carefully selected cases, conservative measures should be employed both in the treatment of chronic abscess and chronic suppurative pericementitis

7 Where root canals have been disinfected and filled, portions of roots resected, etc, the process of repair should be checked up by roentgenograms made at frequent intervals

8 Regardless of whatever form of treatment may be employed, the removal of infection is imperative in all cases, whether the patient at the time may be well or ill

Where the health, comfort and usefulness of a patient are to be weighed over against a tooth, or even all the teeth, the greater interests of the patient must be preserved

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THE PRINCIPLES INVOLVED IN FOCAL INFECTION AS RELATED TO SYSTEMIC DISEASE *

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We understand that an infectious disease is a condition due to the invasion of pathogenic micro-organisms, which are capable of multiplication within the tissues of the host

The principles of infection, both local and general, may be discussed by a consideration of three chief factors

1 The pathogenic micro-organisms and the conditions which modify their virulence and pathogenicity

2 The host or infected individual and the conditions which modify his susceptibility to infection

3 The nature and result of the reactions between the infectious agents and the tissues of the host

THE PATHOGENIC MICRO-ORGANISMS

The pathogenic micro-organisms which may cause infectious diseases are certain fungi, unicellular animal life, the protozoa, and bacteria We also recognize that certain infectious diseases are caused by a filterable virus of ultramicroscopic size The subject of this paper will be limited to a discussion of infectious bacteria, with the exception that *Endameba buccalis* will be considered in oral sepsis

The objects of the paper will be quite as fully attained, too, by limiting the discussion to the usual pathogenic bacteria which cause focal infection, namely, the members of the streptococcus-pneumococcus group, staphylococci, gonococci, colon, diphtheria and tubercle bacilli, certain anaerobes and possibly other micro-organisms Practically all of these may be found on the skin or mucous membranes, and if the surface is unbroken they may exist as harmless parasites Apparently healthy individuals may be carriers of the bacilli of influenza and diphtheria and of streptococci, pneumococci and meningococci located on the mucous membrane of the tonsils, pharynx, nose and accessory sinuses An individual who has had typhoid fever and occasionally one who has never had the disease may be a carrier of typhoid bacilli which may be discharged with the feces and urine The bacteria named may bear an apparently harmless parasitic relation to the carrier, but if communicated to another individual may excite morbid reactions within the tissues of the new host

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* Read before the Section on Stomatology at the Sixty-Seventh Annual Session of the American Medical Association Detroit June 1916

The perpetuation of micro-organisms requires that they be transmitted from time to time to new hosts That is accomplished by a direct route through the secretions and excretions of the mucous surfaces on which they live as parasites, through the pathologic products which they excite in infected tissues, and indirectly through the blood stream by way of the secretions and excretions Here we are not concerned with those infectious diseases transmitted by blood-sucking insects In direct transmission to new hosts the pathologic exudates must communicate with the outside surface, as in furunculosis, tonsillitis, sinusitis, gonorrhea, pyorrhea alveolaris, and bronchitis

The transmission may be facilitated by direct individual contact, as in kissing and coitus, through approximate contact by inhaling air immediately charged with infected dust, droplets of saliva and sputum, by contact with infected articles, drinking and eating utensils, dental and surgical instruments, clothing, and many other forms of fomites, through infected food, especially milk, and by many other means The tissues of the new host may be infected, therefore, through the mouth, air passages, skin or genito-urinary apparatus The infection may be single, as, for example, in gonorrhea, or mixed, as may be seen frequently in diphtheria, with coincident streptococcus infection of the throat A secondary infection is the invasion of pathogenic bacteria into the tissues previously infected It is a type of mixed infection Clinical experience and animal inoculation seem to show that bacterial association in mixed infection tends to increase the virulence of one or all of the species included in the microbic invasion For example, appendicitis, which in most instances is caused primarily by the hematogenous invasion of bacteria, may become fulminating and rapidly gangrenous through a secondary invasion of the injured tissues by the bacterial flora in the lumen of the appendix, usually colon bacilli and certain anaerobes

A high degree of virulence of the infectious micro-organisms is liable to destroy the host, and thus directly diminishes the chances of the infectious agents to pass to new hosts While the susceptibility of the host to a specific infection is an important factor in the result of the microbic invasion, still the laws which govern the perpetuation of pathogenic micro-organisms include adaptation to the conditions, which mean lessened pathogenicity and permit of parasitic existence The permanency of the perpetuation of a given species will depend on the perfection of its adaption to the environment and the opportunity to pass to other hosts As susceptible hosts diminish, through increased resistance, the infection becomes milder and mortality less While the perpetuation of the existence of pathogenic micro-organisms is dependent on the attainment of a condition of parasitism and the opportunity to pass to the new hosts, there is proof that the infectious agents may regain pathogenic powers of a general and even of a special kind The acquisition of a general or special pathogenicity with varying degrees of virulence may occur in various ways Some of the species of bacteria under discussion are pathogenic for animals and may exist in the tissues of animals, as in man, as parasites The bacteria existing as parasites in the animal may be pathogenic in the new host, man

So too the mildly pathogenic or parasitic species may be communicated by man to a medium outside of the body, on which the bacteria may grow and attain pathogenic qualities and varying degrees of virulence for the host Dairymen may infect milk with streptococci from their mouths and air passages Milk is a good culture medium and in it streptococci and other bacteria may attain unusual virulence, and cause severe infection of the mucous membrane of the throat and digestive tract of susceptible persons who drink the unsterilized milk The micro-organisms which have become parasitic in one human host may become pathogenic when communicated to a new host more susceptible to the species The bacterial invaders, mildly pathogenic, may become virulent in a host suffering with general debility from any cause, or whose vitality is low or in whom the blood circulation is poor because of exposure to extreme cold or to severe fatigue The conditions mentioned and other modifying influences may, among other things, affect the oxygen supply of the tissues of the host The varying quantity of available oxygen in the tissues may be an important factor in determining the immediate or remote development of the micro-organisms in the tissues into harmless parasites or into virulent invaders of local or systemic tissues

Schottmuller classified streptococci pathogenic for man, by growing them in solid blood-agar medium, into *S hemolysans* (*longus*), *S mucosus* and *S viridans* (*mitior*) We have learned that any one of these types may change in general and special pathogenicity and the degree of virulence *S viridans,* so named because of the green colored halo produced by the colonies on blood-agar, is usually of very mild pathogenicity for man It is a very common surface parasite of the mucous membrane of the mouth and tonsil Apparently this type of streptococcus may acquire special pathogenicity for the endocardium and especially for old valvular scars and cause enormous vegetations and thrombus formation on the heart valves A person so affected suffers from a constant viridans streptococcemia In other instances a green producing streptococcus of less virulence than the foregoing may be isolated from the infected tissues of the patients suffering from myositis, arthritis and other chronic diseases Evidently the property of green color production on the blood-agar plates only affords a name, but does not signify the pathogenic character or virulence The type may even lose the property of green color production on culture media

By varying the character of the culture mediums, *S hemolysans* may lose the property to hemolyze blood-agar medium It may possess a hemolyzing property, and at the same time may vary in pathogenic characters It may be pyogenic, may acquire a special pathogenicity and tropism for subcutaneous tissues, as in erysipelas without suppuration The ability to hemolyze blood-agar does not necessarily indicate a special or general pathogenicity

The variation of the members of the streptococcus-pneumococcus group in culture characteristics, biologic quality, in general and special pathogenicity and degree of virulence has been noted by many clinical bacteriologists We know that these variations may be brought about in the laboratory, by serial animal inoculations and by modifications of the character of the media and the oxygen pressure in bacterial cultures

Apparently like changes may occur in localized, confined infections, especially those due to the streptococcus-pneumococcus group Here one may infer that the tissues involved in the focal infection act as a culture medium The tissue mediums may be modified by variations in blood supply, consequently in oxygen tension, or unknown biochemic or other factors may alter the character of the confined infectious agents Apparently in no other way may we explain the sudden onset of rheumatism after acute or during chronic tonsillitis, of streptococcus viridans endocarditis associated with alveolar abscess, and many other systemic infections, undoubtedly etiologically related to an existing chronic, localized and confined infection

THE HOST AND THE CONDITIONS WHICH MODIFY HIS SUSCEPTIBILITY TO INFECTION

Man possesses a natural immunity to infection, but it is never absolute The facility of infection of the person and the opportunity for the pathogenic micro-organisms to perpetuate themselves, depends in some degree on the characteristics of the infectious agents, as we have seen, but also on conditions peculiar to the host

The age, environment, social condition, occupation, habits, domiciliary and occupational environment, climate, physical well-being are important factors in determining the susceptibility of the host to infection It is not necessary to consider all of these factors, but a detailed discussion of some of them is important in the attempt to establish a clear idea of the principles involved

The individual host must be considered first, because he becomes a carrier of infection the more readily in proportion to the lack of personal cleanliness, in the habitual overuse of alcohol and habit forming drugs, the practice of sexual immorality and other debility-producing habits By contact with his fellow men in dwelling, workshop, and public conveyances and public congregations, he readily communicates the infectious parasites of which he is a carrier to others The new hosts are more or less susceptible, dependent on the conditions which make for good or for bad defense, already mentioned The facility of communication of the infection from host to host will be necessarily modified by the density of the population, by the hygienic conditions of the home, the workshop, the vehicles of transit, by the general conditions dependent on municipal control of the cleanliness of the streets, the water and the food supply and on the adequacy of the sewage disposal

The person is also important as a host, in regard to the susceptibility to infection due to the modifying influence of age, occupation and the existing physical and mental conditions The child is comparatively more susceptible to the contagious diseases The lymphoid tissues of the child are relatively excessive, especially in the structures of the nose and pharynx Therefore children suffer frequently with tonsillitis, coryza, sinusitis, otitis media and mastoiditis, both acute and chronic The regional cervical lymph nodes may be secondarily infected from the foci named, and while the lymphadenitis may prevent immediate general infection, the infected glands may serve, sooner or later, as additional sources of systemic infection The debility of old age, with the associated poor blood circulation, relatively low tissue nutrition and faulty metabolism, increases the susceptibility to infection and facilitates parasitism Diseases due to faulty metabolism, like diabetes mellitus and gout, invite and prolong infection

Exhausting chronic infectious diseases, like pulmonary tuberculosis, are frequently associated with secondary infection of pyogenic bacteria The mixed infection promotes the virulence of one or all of the invading pathogenic micro-organisms with consequent harm to the host Occupations which entail exposure to excessive fatigue, extremes of heat and cold and to air contaminated with mechanical and chemical irritants are important factors in the production of local and general infection

THE NATURE AND RESULT OF THE REACTIONS BETWEEN THE INFECTIOUS MICRO-ORGANISMS AND THE TISSUES OF THE HOST

The entrance of pathogenic micro-organisms into the body of a susceptible host is characterized by local or general reaction between the invading parasites and the tissues of the host Dependent on the virulence and genus of the invaders, the reaction in the tissues may result in exudates which may be serous, fibrinous, purulent diphtheritic, hemorrhagic, necrotic or proliferative Local fibrinous and purulent exudates are apparent efforts of the tissues of the host to concentrate protective substances and physical barriers about the invading parasites to prevent extension of further infection The walled-off infection may remain localized, the infectious parasites, adjusting themselves to a parasitic existence or local infection, may disappear under the influences of the defensive and offensive powers of the tissues, aided by medicinal or surgical management On the other hand, the local infection may be coincident with general systemic infection or general infection may occur at some indefinite time subsequent to the local tissue invasion

Systemic invasion from a local infection may be by way of the blood or lymph stream The hematogenous route is undoubtedly the usual one Practically always the regional lymph nodes are secondarily invaded from the primary local tissue infection The lymph node infection may be subsequently a source of systemic infection by the hematogenous route On the other hand the secondarily infected lymph nodes may be the place of destruction of the invaders

The reactions of the systemic tissues hematogenously infected are essentially the same as those mentioned under the local reactions of the tissues, that is the production of serous, fibrinous, purulent, hemorrhagic or other inflammatory conditions As already pointed out, these reactions are in the nature of defensive or offensive measures on the part of the tissues of the host to destroy the invading bacteria The infectious micro-organisms also promote the formation within the tissues of the host of defensive and offensive substances, or antibodies These substances, in the form of ferments, are apparently mobilized by the reaction between the invading bacteria and the tissues of the host Immunologists are not in agreement as to the exact factors which enter into the reaction All are in agreement, that all pathogenic bacteria do not cause the mobilization of a uniform number or of like kind of antibodies The number and kind of antibodies found in the host in some infectious diseases, like typhoid fever, may overcome the invaders and afford a lifelong immunity to future infection In other infectious diseases the defensive and offensive forces may overcome the present invasion, but afford no protection, or apparently may increase the susceptibility to future attacks, as in pneumonia and rheumatism

The result of hematogenous invasion with pathogenic bacteria will be modified by the specific type, the virulence of the bacteria and also by the character of the anatomic structure and specific function of the tissue involved

The type and virulence will decide the character of the tissue reaction as to the formation of a serous, fibrinous, purulent or other form of exudate The more virulent the invaders the severer the reaction The less virulent type will cause serofibrinous exudates The tissues of the host are disturbed by the reactions, destructive in character (abscess, necrosis hemorrhage and gangrene) by virulent micro-organisms, and deprived of nutrition and oxygen, more or less, by the proliferation of the endothelium of the arterioles and the serous and fibrinous exudates by he less virulent invaders The infection of a joint ith virulent streptococci or virulent gonococci will ause purulent destructive arthritis The infection with less virulent streptococci and gonococci will result, usually, in a chronic serous or fibrinous arthritis, with subsequent metabolic degenerative changes due apparently to the poor local nutrition, in consequence of the injury to the blood vessels and tissues of the joint Very virulent bacteria are apt to cause local tissue destruction or to kill the host That is, virulent bacteria may be ultimately destroyed by the severe reactions they excite in the tissues of the host

On the other hand, pathogenic micro-organisms of low virulence, which gain access through the blood stream, excite mild reactions, which, however, lessen the supply of blood and oxygen to the tissues involved This may create a condition favorable to the perpetuation of the invading bacteria in the tissues of the host In this tissue medium the bacteria may continue to be pathogenic for an indefinite time or may become purely parasitic without apparent harm to the host Chronic confined infection or even chronic general infection finds an explanation in the reactions excited in the tissues of the host by pathogenic bacteria of relatively low virulence The natural anatomic structures of the teeth, dental alveoli, faucial tonsils, accessory nasal sinuses, seminal vesicles, prostate gland, fallopian tubes, gallbladder and other structures favor confined infection When infected, the resulting morbid anatomic changes in all the tissues named add to the physical conditions which promote focal infection This is well illustrated in chronic alveolar abscess The invasion of the dental alveoli with *Endameba buccalis* streptococci and other micro-organisms results in destruction of the peridental membrane and other tissues The roots of the teeth deprived of periosteum become more or less devitalized and, with other local dead tissues, promote continued and aggravated confined infection The structure of the faucial tonsils invites and promotes continued infection An infected accessory nasal sinus does not as readily discharge the pathologic products of inflammation as the normal mucus secretion The seminal vesicles infected with gonococci may retain them for years of time

The function of infected specialized tissue will be usually disturbed in ratio to the degree of anatomic injury due to the invading bacteria Hematogenous infection of the kidney may result in a general glomerulonephritis of a degree of severity entirely to suppress its function, a like infection of less severity may diminish the function, as manifested by the excretion of a scant, bloody albuminous and cast-containing urine Periodic hematogenous infection of specialized tissues with bacteria of relatively low resistance results in repeated anatomic injury The repeated injury to the blood vessels and other tissues may be so great finally as to result in malnutrition, and metabolic changes degenerative in character take place Probably this is the sequence of events in chronic infectious nephritis, arthritis, myositis, pancreatitis and chronic infections of other organs

The space allotted to this paper will not permit a discussion of the interesting tissue reactions, morbid anatomic changes and altered function which occur in infection of the stomach, subcutaneous tissues, the nerve ganglia, iris, thyroid gland and other specialized tissues

CONCLUSIONS

The conclusions which may be drawn from this discussion of the principles involved in local and general infection are evident The laws which govern the perpetuation of pathogenic micro-organisms involve a life of parasitism harmless to the host or of varying degrees of pathogenicity Apparently any specific type of the bacteria discussed may attain the biochemic qualities which permit them to exist in the host as harmless parasites or as injurious agents possessed of a special or a general pathogenicity of varying virulence The varying pathogenic qualities, special and general, may be acquired apparently in the host or in the passage from host to host (man or animal), or may be brought about in culture mediums

Confined infection (focal) seems to be a site in which the infectious agents may attain specific pathogenicity chiefly in the nature of tissue tropism (elective tissue affinity) This special quality is not recognized necessarily by cultural characteristics The power to hemolyze or to produce green color in blood-agar plates by some members of the streptococcus group does not necessarily indicate specific pathogenicity or degree of virulence The special or general pathogenicity of the infectious agents of the focal infection, and the susceptibility of the host, measured by many factors cited in the paper, may determine the severity, acute or chronic, the extent, local or general, and the site, election of tissue, of the systemic infection It is believed that these conclusions have been sustained by clinical observations and bacteriologic research

122 South Michigan Avenue

Ages of Carelessness—Every one knows that few individuals between the ages of 30 and 60 take any constructive forethought for their physical welfare, few carry out any definite plans for regular daily exercise or proper breathing of fresh air Fewer still have even a fair conception of their own physical make-up or their condition at any particular time, this fact is due likely both to lack of time and to reluctance to face the truth—C H Forsyth

DENTAL INFECTIONS AND SYSTEMIC DISEASE

TREATMENT AND RESULTS *

ERNEST E IRONS, M D
CHICAGO

From the medical standpoint as well as from the dental, the object of the treatment of infections of the teeth is the conservation, as far as possible, of the structure and the function of the teeth, and the prevention of disabling systemic disease So far as the physician is concerned the present discussion is in no sense a propaganda to prove anything with respect to the methods of treatment of teeth by the dental profession It is rather a recital of facts which have come to light in the course of an effort on the part of the physician to understand the cause and mechanism of production of a large group of more or less disabling ailments which for years have baffled him in his efforts to cure them It is true that there have developed many other angles to the question, but these latter have been largely secondary, and the main problem has been and is now that of relieving patients from their disabilities by as conservative and yet as effective methods as possible Every new proposal or discovery in medicine, or in any field of human activity, passes through certain phases of reaction on the part of the professions concerned, characterized by incredulity, popularity, abuse, and finally, if found of value, takes its place among recognized procedures

This has never been better illustrated than in the present discussion of alveolar abscess and its relation to systemic disease It would appear that the great prevalence of alveolar abscess was until recent years as little suspected by many of the dental profession as by physicians, although the importance of oral sepsis was pointed out years ago by such pioneers as Miller and Hunter Now that the facts are becoming known, in large part by reason of the perfecting of roentgenographic technic, many readjustments of practice, both dental and medical, are being found necessary It is the difficulties of these readjustments and not the fault of the demonstration of abscesses, which have led to certain temporary misunderstandings, for the correction of which the only essential is a frank discussion, and then sympathetic team-work between dental surgeon and physician

In this discussion of the medical aspects of dental infection I shall limit myself more particularly to forms of disease associated with alveolar abscess The more superficial lesions, such as pyorrhea and gingivitis, probably exert an unfavorable influence on the general health, and conversely, systemic disturbances may furnish the conditions favorable to their development, but as a rule they do not appear to give rise to the metastatic lesions so commonly associated with alveolar abscess Extensive pyorrhea may result in lateral alveolar abscesses, and possibly give rise to distant metastases, but a study of the medical complications associated with dental disease leads one to the view that infections about the teeth conform to the same principles as do surgical lesions elsewhere, and that it is the closed process which usually gives rise to general infection

I suppose every dentist will agree that a definite and recognized alveolar abscess should be eradicated, whether it is causing general disease or not Such a position is in keeping with the best tenets of American dentistry

It must be recognized also that the final decision as to diagnosis and proposed treatment of a dental lesion should properly lie with the dental surgeon, to whose opinion the physician should defer, but in order that his opinion may be worth having, the dental surgeon must acquire an adequate knowledge of the pathology as well as the mechanical treatment of the dental structures The sins of omission in this matter have not been confined to the dental profession, however, for physicians have been notoriously remiss in the examination of patients, and have overlooked many sources of disease, including those of the mouth, which now are clearly evident

The observance of ordinary rules of professional courtesy by the physician, the dentist, and, I might add, the roentgenographer will go far toward making successful team-work possible, but each must make himself professionally worthy to deserve this courtesy, and must be willing to listen to the views of his colleagues

Before passing to a consideration of the results of treatment from a medical standpoint, I wish to refer to certain misconceptions which have been introduced into the problem

The startling frequency of alveolar abscess and other extensive dental infection has so impressed many physicians and not a few dentists that they are ready to ascribe all human ailments to disease of the teeth, and to attempt to cure them all by the extraction of teeth without definite proof of incurable dental disease, or even presumptive evidence of the causal relation of the dental infection to the systemic disease

This extreme and wholly unwarranted position has brought about a reaction, and in some quarters the pendulum has oscillated to the other extreme, at which are found a group of protesters, who are ready to declare that diseases of the teeth have no relation to infections in other parts of the body, and who from their attitude would seem to assume that the presence or absence of alveolar suppurations is a matter of no concern either to dentist or physician Now looking at the problem for the moment from an impersonal point of view, one can see that neither of these positions can be right, but that the truth lies somewhere between

Another group of physicians and dentists, enthusiastic, somewhat less radical than those just mentioned, have assumed that in a patient suffering from evident disease, such as arthritis, in whom also an alveolar abscess is found, there is necessarily a direct etiologic relation between the two, and that drainage of the abscess will surely result in cure of the arthritis It is true that occasionally this is the sequence of events, but it often happens that the alveolar abscess is only one of several areas of chronic infection in the body, and may indeed be coordinate with arthritis, both being secondary to some previously existing infection The perspective of the enthusiast in any specialty is likely to be narrow, and he does not appreciate the importance of the field of his colleagues

Examination of the blood to determine the presence of leukocytosis has been proposed as a guide to the dentist in determining whether or not a tooth show-

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* Read before the Section on Stomatology at the Sixty-Seventh Annual Session of the American Medical Association Detroit June 1916.

ing doubtful roentgenographic findings should be extracted The desire of dentists to study patients more thoroughly is laudable, but in this instance the presence or absence of leukocytosis can be of but little value unless all other causes of leukocytosis, such as infections in tonsils, sinuses, the genito-urinary and other organs of the body are first excluded, and since this necessitates a complete medical examination, which is not usually available, the test must therefore be far less reliable in routine dental work than the expert examination of the patient's mouth and roentgenogram by the dentist

The importance of alveolar abscess as a factor in the production of systemic disease has been already discussed by my predecessors in this symposium Statistics on this subject have come largely from those who are interested in special lines of inquiry, and the relation of alveolar abscess to systemic disease has been determined by the study of groups of patients selected on account of the presence of some clinically striking lesion, such as arthritis

An examination of the converse proposition is of some interest from the point of view both of etiology and of treatment An unselected group of 329 patients in a medical ward in Cook County Hospital was studied and the incidence of all discoverable infectious processes determined and tabulated for each patient The patients were then classified according to final diagnosis, and the percentage of each type of infection in each disease group calculated It was possible to obtain roentgenographic studies, most of which were confirmed by consultation with dental surgeons, in 124 of the 329 patients Careful tabulation showed that the patients submitted to roentgenographic examination were fairly representative of the entire group In 44 per cent of the 124 patients alveolar abscesses were found In the arthritic group 76 per cent had alveolar abscesses, in the group of nephritis and cardiovascular disease 47 per cent, other diseases, including pneumonias, respiratory, gastro-intestinal, 23 per cent, or less than one third of the percentage in the arthritic group Abnormalities in tonsils, as expressed by hypertrophy, were present in 45 per cent of the arthritic group, in 24 per cent of the cardiovascular group, and in 19 per cent of the remainder Other chronic infections, such as those of sinuses or genito-urinary tract, were found in 21 per cent of the arthritic, 13 per cent cardiovascular group, and 11 per cent of other diseases Syphilis, either from the history, clinical evidence or Wassermann, was found in 23 per cent of the arthritic group, 39 per cent of the cardiovascular group, and 13 per cent of other diseases

This group of patients is not entirely comparable to a group coming from a higher economic station in life, but the figures serve to demonstrate the relation of the incidence of infections to other forms of disease within the group

All arthritis or other metastatic and systemic disease is not due to alveolar abscess or to tonsillar infection, of course, but the preponderance of such lesions in this group suggests that these infections may play an important part in the production of chronic arthritis and similar ailments, and probably of certain types of cardiovascular disease, not only the valvular, but the arteriosclerotic, and also certain forms of nephritis, in which cold and exposure are only part of the determining causes

In the arthritic group therapeutic measures directed to the removal of infectious processes have been followed by gratifying results, even in a rather unfavorable material Our readmissions for recurrences of arthritis, which in former years were frequent, some patients returning as many as four times in a season, have been relatively fewer, and usually of patients who for some reason or other could not be submitted to proper surgical attention

In a series of 100 cases of iritis studied with Dr E V L Brown we found alveolar abscesses and other closed infections, as revealed by roentgenograms and expert dental consultation, in 36 per cent of forty-seven private patients and 45 per cent of fifty-three dispensary patients, and in 18 per cent of the 100 patients the disease of the eye appeared to be associated with dental infection

In estimating the results which may be expected from the correction of alveolar abscess in any given case it is evident that the presence and influence of other infectious foci must be considered, and neither too great credit for success nor too great censure for failure should be imposed on the dental surgeon who deals with only one of the possible factors in the larger general problem of recovery of the patient Nor can we always promise prompt cure, even in those patients whose illness clearly originated in dental infection, for after the apparent immediate source of infection is removed, there often remain the mechanical injuries of joints and eyes, or other tissues may have become secondary foci of infection, and recovery is a question of measures which shall build up the resistance of the patient by improving his general nutrition

VACCINES

The question of the use of vaccines has vexed the physician quite as much as it has the dentist Active immunization by the injection of specific vaccines has proved of enormous value in the prevention of certain diseases, such as typhoid fever, but the results of the use of vaccines in the treatment of persons already suffering from infections have been in general decidedly disappointing

There are certain more or less theoretical considerations in regard to the effect of an injection of vaccine on the balance of immunity between invading organism and host in a lesion such as alveolar abscess, but inasmuch as this balance may be deflected as often against as in favor of the host, the theoretical as well as the practical results of vaccine injections as now practiced indicate that their value is extremely doubtful, and that in no case should their use be allowed to replace or hinder the employment of recognized dental and surgical procedures

Under the most favorable conditions a vaccine could be only an adjunct to other treatment, and in the types of disease we are now discussing, adequate surgical treatment by the dentist usually renders this adjunct superfluous so far as concerns the medical care of the patient The dentist deals with special types of tissue, but allowing for peculiarities in structure and function of the tissues involved, the same principles of immunity and surgical procedure apply to infections about the teeth as to other organs of the body When proper surgical measures are carried out by the dentist, the natural resistance of the tissues of the body, including those about the teeth, is usually sufficient to overcome the infecting organism It would be foolish and futile to attempt to substitute the injection of vaccines for drainage and other well-established methods of treatment of an alveolar abscess, when proper dental procedures have been carried out, vaccines become unnecessary The same statement would appear to apply to the treatment of pyorrhea in which the practice of injecting vaccines, as advised by those commercially interested in their production and sale, has led to absurdities as discreditable to the skill of the dental profession as are similar practices so common in the past among physicians

SUMMARY

The attitude of the physician in studying his patient should not be that of the prosecuting attorney bent on convicting the teeth of being the cause of all disease, nor should the dentist assume the brief of the defendant, ignoring the evidence of roentgenograms and systemic disease Both must work in harmony, each believing in the sincerity and good-will of the other, observing professional courtesy and laboring to place the patient in the best physical condition possible

There seems to be no question that in many cases alveolar abscesses are the source from which invading organisms pass into the circulating blood and produce lesions in joints, eyes, nerves and other structures of the body It is also true that alveolar abscesses, like tonsillar and other infections, may be latent so far as any marked effect on general health is concerned Nevertheless, they are potential sources of trouble, and from the medical standpoint, and I believe from the dental, should be eliminated The recognition of the important relation of alveolar abscess to systemic disease is a great step forward, and the period of extreme neglect of the past will never return The readjustments in methods of diagnosis and in the establishment of a rational conservatism will come gradually as we learn to appreciate the interdependence of all organs of the body and the community of interest of the dental and medical professions And this advance in turn calls for better medical education, better dental education

The difficulties and misunderstandings from which we are now emerging afford one instance among many of the necessity of providing educational facilities which shall produce broad-minded professional men who can appreciate the problems of departments of human medicine other than their own

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS MOOREHEAD, BILLINGS AND IRONS

Dr Robert Hessler, Logansport, Ind When I first entered the medical college in 1889 my respiratory mucous membranes reacted acutely, I had profuse coryza and catarrh At times the secretion was abnormal, and under severe infection there was actual pus After the formation of scar tissue the mucous membranes reacted less At present I seldom have a coryza I have an 'open throat", it is not closed by encroaching hypertrophied tonsils In the course of years the reaction of the respiratory tract on inhaling infected air became less marked, but the cardiovascular system reacted *Ordinarily*, I live under good air conditions on the edge of a small town and my blood pressure is about 100 On inhaling infected dust, as at present, it will run up to 150 My father was a 'high pressure case and died at 40, I am 55 During the last year I noticed a new reaction After being exposed to bad air, I could readily draw blood from my gums, in the morning it is dark I *can do it now*, I tried it a few moments ago Depending on the amount of infection inhaled or length of exposure this condition prevails for one or more days maybe a week when it fades Then there may be another exposure, and I can again draw blood The gums are infected At such times I also notice more or less arthritic pain, especially in the wrists It means infection (My father was subject to general arthritic, "gouty" pains and had an ankylosed left wrist) As a student of prevalent ill health and causes, I believe the problem is largely one of communal cleanliness, especially in abolishing the spitting habit

Dr M L Rhein, New York With our understanding of local infections at the present time, I am impressed with the fact that so far as the welfare of the public is concerned it is timely for our profession to speak in no unmeasured terms in regard to things that are being done today by dentists who know better, and whose only excuse is an economic one One most unfortunate fact is the imperfect education of the dentist There is no place in the practice of stomatology in the future for the man who is not thoroughly educated in medicine A great deal has been said about focal infection, with reference to alveolar abscess I believe it is wise to divide focal infections into two classes, the one where there is a distinctive type of alveolar abscess, and the other where there is no abscess In the dental granulomas, where there is a distinct growth of granulation tissue with its fibrous envelope, known in the older literature of dentistry as the blind abscess, *there is no abscess, and no pus formation* We almost invariably have the colonization of the *Streptococcus viridans* In fact, these granulomas are simply filled with *Streptococcus viridans* whose low degree of virility seems to make it impossible for them to produce pus, but they seem to have the same power of producing as severe a toxin as could come from pus itself Where we have either of these conditions present are they the sources of metastates? During the past year I have had recourse to the streptococcus fixation complement test, introduced by Dr Hastings It is a most efficacious means of determining whether the individual is having a direct effect from these infections My clinical study of cases leads me to believe that these organisms gain their entrance to the alveolar structure at the foraminal entrances of the roots due to imperfectly handled dental operations These foraminal openings are left unsealed

Dr. W D Calvin, Fort Wayne, Ind When emetin was first proposed as a cure I studied two series of cases, one with the use of emetin in conjunction with a careful hygiene of the teeth, in which I found some improvement, and another in which I allowed the patients to use the same mouth hygiene as previously practiced and with the use of emetin, and in these latter cases I did not note the same improvement I have come to the conclusion that emetin is worth practically nothing The only point I wish to emphasize is that we should consult with our dentist brethren more than we do As Dr Billings stated, the mouth probably is the dirtiest place in the human system, but I do not think that we should arrive at the conclusion that it is the cause of as many of the conditions as have been attributed to it in the last two years We should recognize that mouth infections not only act on other parts of the body, but that the mouth is acted on by *septic conditions in other parts of* the body

Dr G R Satterlee, New York I too, would like to emphasize the advantage of meetings between dentists and medical practitioners A short time ago a paper was read before the Bronx Medical Society by a very well-known Boston dentist who made the statement that he thought the medical profession was laying too much stress on infections from the teeth, and the gist of his statement was that he could not see how an apical root abscess with a strong peridental membrane and pericementum around it could possibly be the cause of a general infection I do not suppose any medical man among us has failed to have at least one case where an alveolar abscess, that has been relieved by withdrawal of the tooth, has not been followed by relief of the patient's symptoms Of course, the difficult thing is to decide whether it is a concomitant or whether it is the cause I think we all agree that it ought to be taken care of anyway I would like to ask the speakers one question—and particularly Dr Billings—as to the value of the complement fixation test *in the identification of different types of organisms*, just what organisms can be identified by a complement fixation test, what types respond to it, and if, by injection of a vaccine of that particular type, we obtain a local reaction in some part of the body, would that reaction give any clue as to the locality of the cause of the infection?

Dr William C Fisher, New York There seems to be an idea among the medical and dental professions, and it is getting among the laity, that in order for a dentist to treat roots properly he must have the M D degree No one wants the higher education of our dentist extended more than I do, but there are thousands of dentists in the United States who have only a dental college education, and have been properly trained in dental surgery There is no excuse for any dentist not doing good root canal work, even if he has only the education which he received from a dental college While a medical education is of great aid to the dentist in his diagnostic work and in his collaboration with the medical man and in research work, yet I do not wish to see the responsibility lifted from the general dental practitioner who has only a dental degree, and I do not want the public and the medical profession to think that the something that was not given him in the dental college is the reason why we have this poor root work They have sufficient technical education to do good root work, and if they do not do it, the fault is with the individual man If a tooth is devitalized and the roots have never been filled, and still the Roentgen ray does not reveal any shaded area or subnormal area beneath the root, that is not an assurance that there is no infection there If the Roentgen ray shows a devitalized tooth that has not had proper root treatment, then that tooth should be opened and an attempt made to treat it If the dentist cannot go through to the apical foramen of each and every root of that tooth, then that tooth should be extracted My reason for that is the fact that in a case of arthritis a few weeks ago there were two such teeth, lower molars, on both sides of the jaw, that it had been impossible for myself and one other dentist to get through I insisted on extraction, and my bacteriologic confrere reported in a few days that he had *Streptococcus viridans* from the apexes of both molars The roentgenograms in this case were read by our most expert men, and they could not find any shading at the ends The general practitioner was looking for a focus of infection, and we found two areas in those root sockets

Dr John E Nyman, Chicago Local infections of the mouth which cause systemic derangements may be divided into two classes First, the open discharging variety, those that produce systemic derangement by reason of their influence on and through the digestive tract, such as discharging pockets of pyorrhea unaccompanied by pain or soreness about the teeth, and resulting in a slow systemic toxemia Second, the enclosed form of focal infection, producing systemic derangement directly through lymph and blood vessels The first form of infection may give rise to digestive derangement, the frequent hyperchlorhydrias without definite cause, resulting later, perhaps, in gastric ulcer, or in spastic constriction in the colon, predisposing to acute or chronic subacute attacks of appendicitis These toxemias are sometimes related to mental derangements I think Dr Craig of New York reported some twenty cases of melancholia which showed no improvement until pyorrheal conditions had been eradicated The other form, that of metastatic infection through the lymph and blood channels, may result in such conditions as chronic arthritis, single or multiple, also in cardiac derangements with an intermittent angina, or cardiac insufficiency Through my association with men who are in the practice of medicine I can relate a list of diseases which were really definitely relieved, even cured, by correcting the abnormal conditions in the mouth This list comprises arthritis, cardiac derangement, angina, hyperchlorhydria, spastic constriction of the colon, reflex neuroses, insomnia, and all forms of phobias My experience has been that many phobias and insomnias have been due to mechanical disturbance by impacted unemptied teeth Recently I had three cases which have been cleared up by removal of badly impacted teeth Even if no definite systemic disturbance of any kind is reported coincident with pathologic conditons in the mouth, the continuance of these conditons in due course of time has its effect on the tissues of the body, resulting in a form of cell depreciation, so that the individual is more susceptible to an acute invasion I am glad Dr Irons spoke as he did concerning vaccines There is always danger in the use of vaccines of developing a state of "sensitization" or a form of anaphylaxis In subacute chronic arthritis we have not a disease to deal with which is ordinarily dangerous or acutely distressing to the individual, and we may, in administering a vaccine for the purpose of quickly eradicating that condition, "sensitize" the patient so that if some dangerous condition develops through meningitis, diphtheria or tetanus which requires the administration of a specific serum the injection may result in a fatality

Dr W A Price, Cleveland I recently asked the pathologist in a hospital what proportion of the teeth he saw extracted were related, directly or indirectly, with the lesion for which they were extracted, and he said, "Not 25 per cent" Again, one of our leading medical pathologists stated that every tooth with a devitalized pulp was a sequestrum Therefore, devitalized teeth must be extracted In the researches we have been making in the Research Institute of the National Dental Association we have not been able to sterilize one single canal, so that where there was not a fistula we could not aspirate a culture from beyond that apex after the treatment More than that, we have never been able to produce a condition in which we could not get the culture from a canal, without a fistula, where there was an apical infection, within six days This was the case, no matter what medicine was used We tried everything from sulphuric acid to formalin, and various medicines which we knew should not have been used in ordinary conditions, but which we used as part of the experiment So far as I am concerned, I cannot sterilize the area beyond the tooth apex by any means, but I do believe we dentists can so change the balance of safety for that patient that we will reduce the infection and give nature a chance to destroy that infection

Dr Frank Billings, Chicago I thought I stated distinctly that the reaction of pathogenic organisms invading the tissues anywhere would produce a serous, a fibrinous or a purulent exudate, and I named some other conditions Apparently the difference in the reaction of the tissues depends on the virulence of the specific infectious agent In the one event it is virulent enough to cause a positive chemotaxis, and leukocytes wander through the local tissues and if in sufficient numbers, we call it suppuration If less virulent, it allows less reaction, fibrinous in character, and walls off the microorganism In a less virulent type and on the surface of the serous and mucous membranes, a serous exudate is caused, which may wash away the infectious agents Therefore, a degree of pathogenesis, as we understand it, is the thing which characterizes the reaction which takes place in these tissues Then, when we go further, and with the members of the streptococcus group attempt to say that this one does this and that one does the other thing, because it produces certain characteristic conditions on a culture medium, we are going far astray Schottmuller classified the streptococci which are pathogenic for man He found that one type destroyed the blood corpuscles of the medium, therefore, was hemolytic, another one produces mucous conditions, and he called it the *Streptococcus mucosus,* another one produces green halos about the colonies, with some destruction of the red cells, and he called it *Streptococcus viridans* The theory that the *Streptococcus viridans* is the least virulent of all streptococci cannot hold, because the different strains which have the power to produce green in the culture medium have not the same virulence or pathogenicity Nor can we say that the one that destroys blood is always a pus-producing one, because the *Streptococcus erysipelatis* does not usually produce suppuration It has an affinity for the subcutaneous tissues and does not usually produce pus *Streptococcus viridans,* having its source in some focal infection, may have that tropism which I mentioned, which makes it pathogenic for the endocardium If the endocardium is scarred by an old disease, it may therefore make a better soil, and enormous vegetations are produced on the valves There will be constant bacteremia It will immunize itself against the host Another type of *Streptococcus viridans* may produce changes in joints and muscles and have no affinity whatever for the endocardium All these organisms are the so called endotoxic bacteria, and we are in doubt as to whether the toxin is the specific agent that produces the tissue reactions, whether it is the protein combined with the toxin that produces the reaction, or whether it is some split product of the protein, as Vaughan believes There is something specific about it, otherwise we would not have the one producing pus, the other an erysipelas, the other infection of the heart, another acute rheumatism, another chronic affections of the muscles and joints Therefore, when you ask about vaccines you must first of all make the bacteriologic diagnosis, to know that you are using the specific agent that causes the disease We have attempted to study the possible value of so-called autogenous vaccines In over five hundred cases of chronic arthritis we have compared the results of the vaccinated patients with those not vaccinated but receiving the same hygienic treatment and the result was apparently just as good without as with the vaccines Furthermore, where one would sometimes note a local reaction from a vaccine, the same reaction would also result from a nonspecific protein

Swallowed bacteria meet with resistance of the intact mucous membrane throughout the intestinal canal They meet with destructive influences of the gastric juice, and it is a question always as to how many pass on into the intestine. To say that they are destroyed there and the toxins absorbed to produce general disease is going away back to our old ideas of autoinfection or autointoxication If intestinal infection does occur, it must mean that the organisms are viable enough, resistant enough, to pass the barrier of the stomach reach the intestine and pass into the mucosa, and from that into the lymphoid structures of the mesentery, and there form a new focus Practically, general infection occurs hematogenously or lymphogenously Even if the lymphogenous infection occurs first, the infectious agents pass from the lymph nodes into the blood stream, and finally, therefore, the route of infection is hematogenous We must get away from our old ideas of toxin absorption from a focal infection or from the gastro-intestinal tract as causing general disease.

Finally, when we come to therapy dentists need not feel at all mortified about what they do It is not a question always, I think, of technic in dental practice It is a question as to how you are going to get rid of existing conditions The condition of the host is important, not only in primary infection, but in the continued infections as well If the dentist does not recognize that the condition of that patient whose mouth he is treating requires that he should go to some doctor who is wise enough to build up his natural defences by hygienic measures, then the dentist is not doing his part for the patient If the doctor to whom the patient is sent by the dentist, because he finds focal infection about the jaws, does not recognize that focal infection is more dangerous in individuals who are debilitated and does not do his part, he should not blame the dentist because he does not eradicate the focus

Dr F B Moorehead, Chicago The one vital thing that the dentist must face in this matter of chronic infections is this He alone is responsible for the removal of infection from the mouth It is a demonstrable fact that certain well defined infections may result from foci about the teeth Whether at the time the patient may be sick or well there is always a margin of doubt, a margin of contingent disability that the patient must be guarded against The dentist therefore must make certain that the tissues have been placed in a state of health before the patient leaves his hands In the hands of highly trained men certain conservative measures may be undertaken, but the general practitioner, the average man, may not assume the role of a specialist. The tissues of the mouth should not be looked on with an unwarranted suspicion Infections about *the teeth should* be regarded in the same light as infections involving the appendix gallbladder or the tonsil It would seem to be a matter of plain ordinary common sense to remove infection wherever it may be found

METHODS AND RESULTS IN GASTRIC SURGERY *

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The basis for this paper is a critical study of 472 operations on the stomach performed by my associates, Drs Bunts and Lower, and myself, and in the records of Lakeside Hospital Of these, 132 were performed by Dr Lower and myself in accordance with the principle of anociation, these cases including explorations in cases of inoperable cancer, resections, and gastro-enterostomies for cancer and ulcer Among these 132 cases there have been three deaths, a reduction from the former mortality rate in like cases of not less than 3 1 In but one other field is anociation so strikingly beneficial — in the surgical treatment of exophthalmic goiter

Originating in the great school of Vienna, fostered in Germany, its progress accelerated by Mayo-Robson, given a classic status by Moynihan, mechanized by Murphy, and culminating in the Mayo Clinic, the great field of gastric surgery through trial and error, progress and extension has become established, yet in bad risks the mortality is still too high

That the high mortality rate of gastric operations has been due not to faults in operative technic but to some unappreciated underlying *factor* is *evidenced* by the always comparatively low mortality rate of operations on the pelvic organs Why have the excisions of large pelvic tumors, for example, always caused fewer deaths than major operations on the stomach or on the intestines? It is because the functions of the stomach and intestines govern so completely the balance of material for constructive metabolism

This fact not only gives us the key to the fundamental cause of the high hazard in major gastric operations, but also suggests a plan of attack by means of which the mortality of these operations may approach the low mortality of pelvic surgery

Whether the case be a resection for cancer or a gastro-enterostomy for ulcer, the reserves of the starved patient must be built up by the introduction of water, sodium bicarbonate and glucose and especially by an adequate amount of sleep and rest, and acid formation must be diminished by the elimination, as far as possible, of worry, fear, anxiety, exertion, loss of sleep, trauma and anesthesia

In the case of ulcer, the fate of the ulcer-bearing area is the chief consideration, for the evidence on many sides, especially that presented by the Mayo Clinic, shows the tendency to cancer growth in ulcers of the stomach, though happily not in duodenal ulcers Our lamented President, Dr Rodman, made a logical departure in the complete excision of the ulcer-bearing area, but even this is not enough At this point we must join hands with our medical confreres and for a period of many months — six or more — the patient should be kept under strict dietetic care, *such, for* example, as the Sippy regimen If the patient is dismissed from the surgeon's care to the same habits of life, and the same dietetic carelessness that existed when the ulcer originated, and if in certain cases mouth infections and teeth defects are uncorrected, then there is bound to result a certain percentage of failures It is just as illogical to exercise no care over a postoperative ulcer patient as it would be to dismiss a postoperative exophthalmic goiter patient without therapeutic instructions and prolonged oversight

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After surgical treatment for ulcer, as after a thyroidectomy, the immediate relief is so marked that it is difficult to make the patient believe in the necessity for special care during a long period

The clinical results of the surgical treatment of duodenal ulcers are even more striking than in cases of gastric ulcer The rapid disappearance of gastric ulcer masses is illustrated by cases reported by Lilienthal and Willy Meyer in which ulcer masses supposed to be carcinoma have disappeared within a week or more after gastro-enterostomy, as proved at the second phase of a two stage operation I myself have seen three such surprising results

TECHNIC

As has already been stated, the principle of anociation is applied throughout the operation —minimum handling, feather edge dissection, avoidance of pulling and tearing manipulations, the injection of novocain before the division of skin, fascia, muscle and peritoneum, and a massive infiltration with quinin and urea hydrochlorid, at a distance from the line of incision, immediately after the abdomen is opened

Shall the pylorus be occluded? By what technic? In the light of our experience occlusion of the pylorus is rarely required, as the relief without is about equal to that secured with occlusion When the pylorus is occluded, a simple method, such as a circular tying with a suture reinforced by interrupted stitches of silk, answers well

The Jejunal Loop —The most important mechanical problems are the length of the jejunal loop and its direction The length should be most carefully considered If the loop is too short there will be intermittent interference with the desired current of the jejunal content which at times will accumulate in the stomach If the loop is too long a vicious circle may become established The correct position and the length is that which equalizes the pull on the supports of the stomach and the jejunum This adjustment can only be secured empirically and cannot well be described

Shall the loop run from right to left or vice versa? The direction should be that which mechanically is the more comfortable If the stoma is placed near the pylorus, then usually the loop runs from left to right, if the stoma is well toward the left, then the loop runs from right to left

The Stoma—The work of Cannon and Blake and of others shows that food propulsion is under functional control rather than the control of gravity Therefore a stoma near the pylorus is sanctioned for physiologic as well as practical reasons, a stoma far from the pylorus may cause serious stasis Since the stoma exerts no control over the propulsion of food in either the stomach or the duodenum, its direction, whether oblique, transverse or longitudinal, is unimportant The stoma tends in time to become oval or round with a sharp margin Even a large stoma does not materially interfere with the retention of stomach contents during the early hours of digestion, and a very small stoma, like a very small pylorus, may allow enough food to pass through

In two outside cases I enlarged a stenosed stoma, but in none of my own cases has the stoma shown an impairing contraction, whether the pylorus was closed or open, apparently making no difference

The Incision Through the Mesocolon — Owing to its extreme elasticity, it matters little whether the incision through the mesocolon in a posterior gastro-enterostomy be vertical, horizontal or oblique, but it should not divide large arteries The incision may be enlarged in several directions, but always by division with a sharp knife, and not by tearing

The Suture—The suture must prevent bleeding and leakage and must maintain absolute coaptation of the serosa For securing these ends the cobbler stitch inserted with Bartlett needles is ideal Mayo has pointed out a serious objection to the use of silk for the inner suture —it may remain indefinitely and cause ulcers We have found it the best procedure to use chromic catgut for the first row of sutures, these being reinforced by interrupted right-angled silk sutures including the muscularis In no case has there been serious hemorrhage

The Jejunal Angles and the Opening in the Mesocolon — Unless guarded against, acute angulation of the jejunum at its junction with the stoma may occur This may be prevented by the insertion of several silk sutures to hold the afferent and the efferent loops closely against the stomach A more serious occurrence is a mass herniation of the small intestine through the opening in the mesocolon This in turn is prevented by suturing the margin of the mesocolon opening to the stomach approximately an inch above the margin of the stoma

This procedure also gives freedom to the stoma and the jejunal loop

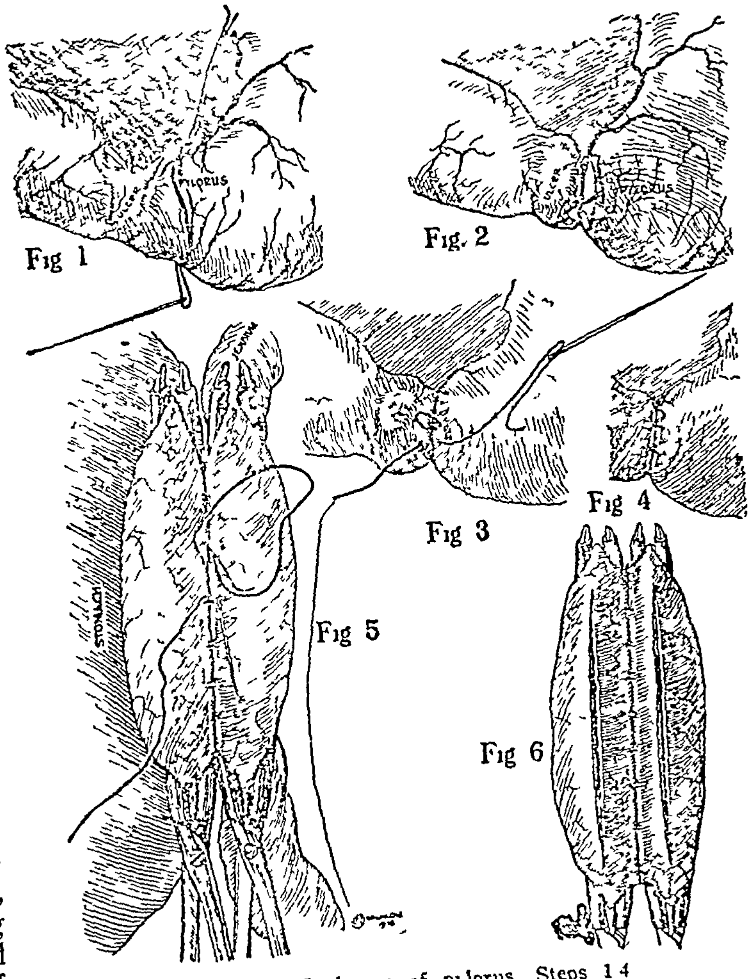

Fig 1

Fig. 2

Fig 3

Fig 4

Fig 5

Fig 6

Figs 1 4—Occlusion of pylorus, Steps 1 4
Fig 5—Right angled stitch including muscularis
Fig 6—Incisions in stomach and jejunum

SUMMARY

In starved cases of gastric cancer or ulcer the reserve alkalinity of the body has been reduced Nutrition is impaired, the reserve stores of water and of potential energy are diminished Surgical treatment, therefore, includes the preoperative and postoperative introduction of water, of alkalies and of glucose in large quantities, the management of the patient by interns and nurses in such a manner as to avoid such acid forming activations as anxiety, loss of sleep and exertion, the application of the principle of anociation throughout the operation itself, and in cases of ulcer, a prolonged postoperative period — six months at least — under therapeutic direction, especially as regards diet

ABSTRACT OF DISCUSSION

Dr Albert J Ochsner Chicago With the ordinary stomach operation with the patient in a fairly good condition there should be no mortality But in this class of cases there is a considerable number of individuals who have lost this reasonable amount of margin of safety and here we find the mortality The other cases in this class have no mortality and surgical judgment is the element that reduces the mortality There are certain things that can be avoided which if not will narrow this margin of safety to a dangerous degree If the traumatism and the strain on the nervous system are reduced to the very slightest amount then you have removed the portion that is lacking in these patients and you place these particular patients that give the mortality ordinarily in the same favorable class with the rest Dr Crile's way of excluding the pylorus seems very attractive I think that it will be necessary, however to place the sutures rather more deeply than most surgeons would be inclined to place them because if they are not placed more deeply the communication will be reestablished afterward, and judging from the illustrations shown the sutures were evidently placed more deeply than they are ordinarily placed I wish to direct attention to another point in which he also increases the margin of safety, namely, in the careful suturing of the wound between the intestine and the stomach so that there cannot possibly be any loss of blood after operation because a little loss of blood in this class of cases is of the greatest importance

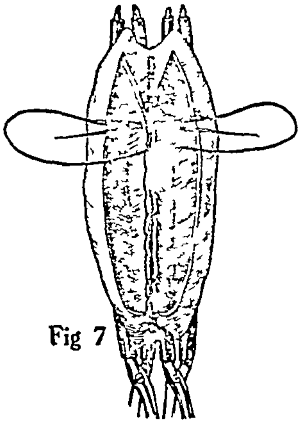

Fig 7

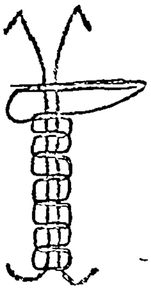

Fig 8

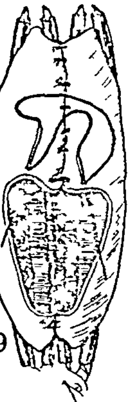

Fig 9

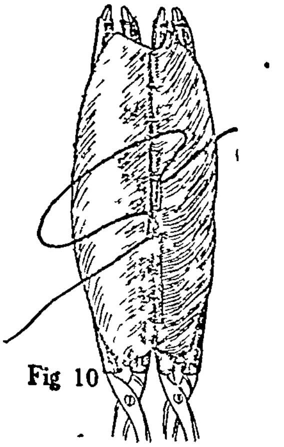

Fig 10

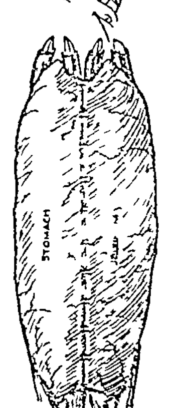

Fig 11

Figs 7 9—The cobbler stitch
Figs 10 11—Interrupted right angled stitch over cobbler stitch

Dr. R. C Coffey Portland Ore Dr Crile has failed to emphasize sufficiently one of the principal reasons for his splendid results namely, that he uses two stages or sittings when he is doing an excision operation

In our experience the adoption of the two-stage operation has been the most important single step we have taken in abdominal surgery of any kind for some time. In excising portions of the pylorus our mortality has certainly been decreased at least two or three times when compared with results in similar cases done at a single sitting We have not had a single fatality from the second stage of the operation for four years The mortality we have had in gastric surgery has been confined to the primary gastro-enterostomy In other words, the two-stage operation reduces the mortality in an excision to practically the same as a simple gastro-enterostomy I would like to ask Dr Crile to explain his view of the cause of the improved results following the two-stage operation Is the first operation intrinsically more serious, or does it produce a sort of immunity for the second operation? The question as to the cause of secondary ulcer has not been settled Dr Mayo believes it is due practically always to the linen or silk suture We have not been entirely convinced We have had four ulcers of this type It is true we have found linen suture at the base of the ulcer in three instances, but the ulcers have extended 2 to 3 inches away from the suture and in one case in which we used catgut entirely we had an ulcer of the same kind Curiously enough the four ulcers occurred in two patients In each case the ulcer recurred and in one of these cases at least it recurred after the second removal that we know of in spite of the fact that catgut was used throughout There is a point we learned in experimental surgery An interrupted silk or linen suture that penetrates all the coats of the stomach and intestine is eliminated in a few days into the lumen A suture that does not penetrate the deep tissues remains encysted A continuous suture which penetrates the lumen at some points and is only peritoneal at other points can neither eliminate itself into the lumen nor can it become encysted It is in this class that we have found the suture still hanging in the wound This is undoubtedly the type of suture that is frequently found in these cases of secondary or recurring gastro-jejunal ulcer and may be simply an innocent bystander

Dr Henry O Marcy, Boston Twenty-five years ago I demonstrated that buried absorbable sutures should be used in operations of this type and slowly came to the conclusion on experimental evidence that catgut was defective and kangaroo tendon sutures were greatly to be preferred They were prepared in a careful way by chromicizing and thus made durable Again, the way in which they were applied Dr Coffey said that it is unwise to penetrate all the coats of the intestine Of course, since the intestinal contents are infective one must be sure to have the strong connective tissue layer of the intestine included For over twenty-five years I have used the continued double tendon suture, the so-called cobbler stitch I use a needle with an eye near the point It is rethreaded with the opposite end and thus carries the suture through one and the same opening The superficial layer of sutures is carried through the external coat only but must itself be buried In other words it is absolutely buried In this way, as Dr Crile has emphasized, one damages the parts a great deal less than in any other and saves the lesions that are so likely to occur, to make adhesions and give subsequent trouble.

Dr. John B Deaver, Philadelphia As to anociassociation, I will say little as I know practically nothing about it but from the fact that it is recommended by Dr Crile we must take it *that it is valuable I would take exception to* what Dr Crile says in reference to pyloric occlusion This is only a makeshift It is not permanent I have operated in cases the second time that I had originally operated myself and I know that with few exceptions pyloric occlusion is not particularly satisfactory When the pylorus is tied off tightly the tissues are devitalized and as a result we have ulceration, separation and restoration of the lumen I strongly emphasize cutting out the ulcer when it is possible, this is my practice In the last forty cases I have done at the German Hospital, among which were many pylorectomies, there was no fatality The majority of ulcers of the duodenum are situated in the first portion anteriorly, and when the induration is not too pronounced the ulcer can be excised, when induration is considerable amputation of the duodenum and posterior gastro-enterostomy, in other words pylorectomy, are indicated Where the ulcer involves the lower portion of the first part of the duodenum coming in close proximity to the head of the pancreas it is my practice to dissect the duodenum away from the pancreas, purse-string it, invaginate and so forth Where induration is extensive and where it is impossible to purse-string, I oversew the duodenum and sew the stump into the head of the pancreas As to the subsequent course of these cases I am prepared to say that they go along nicely if they are not medicated A small number are nauseated, some vomit, which is relieved usually by one lavage or by lavage repeated two or three times Lavage is of most importance in the after-treatment of these cases

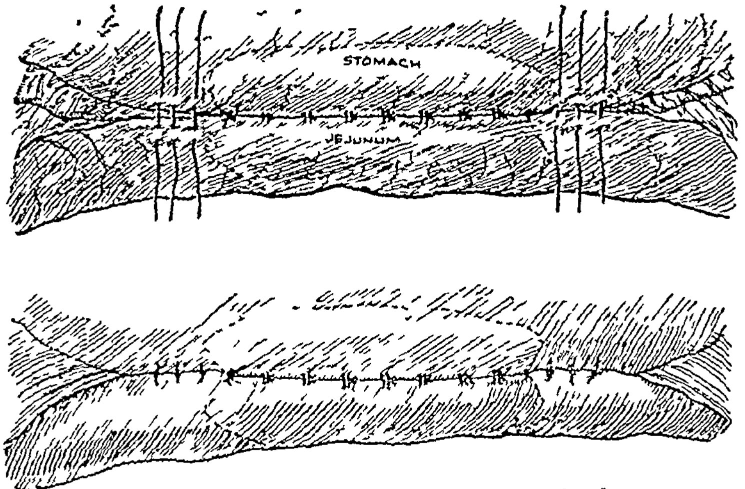

Fig 12 —Stay sutures inserted at each end of completed anastomosis above, untied, below, tied

Dr Alfred A Strauss, Chicago Dr Crile has advanced the technic of gastro-enterostomy, but I do not believe that he has advanced the work on pyloric closure when he uses a silk ligature method, which is only a temporary closure for a chronic indurated ulcer Ulcer of the pylorus and duodenum is primarily a medical disease, and careful medical treatment will heal many of these ulcers When the ulcer has become chronic and indurated, surgical interference is indicated I do not believe that a temporary closure with a silk ligature, which does not hold the pylorus closed any longer than *from* ten to thirty days, is of any value in a chronic ulcer of the pylorus or duodenum, which takes weeks and months to heal I have recently fluoroscoped a number of such cases in which the pylorus was closed over by a silk ligature the size of an umbilical tape In one case the pylorus was opened and the bismuth meal passed through at the end of ten days, in another case at the end of eighteen days, and practically all of them were open at the end of twenty-one days In addition, two of these cases had almost fatal hemorrhages What value has such a temporary closure on a chronic indurated ulcer? We know from fluoroscopic and Roentgen ray work that from 40 to 50 per cent of the food passes through the pylorus, no matter how well the gastro-enterostomy has been performed and placed Therefore, the irritation to the ulcer surely cannot be lessened sufficiently *to produce* healing The only way in which gastro-enterostomy alone helps is from the fact that the bile secretions regurgitate through the opening into the stomach and alkalinize the secretions This surely cannot be constant, for if 50 per cent of the food passes through the pylorus anyway, this food as it passes over the duodenum *neutralizes the bile So the only* time bile can flow in any quantity through the gastro-enterostomy is when the stomach is empty or no food is passing over the pylorus Therefore, *if a pyloric closure is indicated* at all, a permanent closure is indicated, such as von Eiselsberg's unilateral exclusion, or the simple submucous fascial transplant method which I devised This fascial transplant closure has been shown to be absolutely *permanent, and certainly is not an* additional risk to the patient There is no chance of hemorrhage or infection I have so far seen no case of leakage following this procedure

Dr G W Crile, Cleveland The discussion has focussed largely on a procedure we rarely do — namely, the occlusion of the pylorus We have found out from experience that without any occlusion of the pylorus the symptoms disappear, and the jejunal lesion heals promptly I am inclined to agree with Paterson that in all gastro-jejunostomies a certain amount of alkaline fluid comes through the new stoma into the stomach and reduces the acidity, this probably is as much a curative factor as any other feature of the procedure Dr Coffey raised a very interesting point I think the reason the first contact with the very bad risk patient is so menacing is because of the narrow margin of safety due to starvation Dr Deaver's *more radical views* show that in a large measure each surgeon must be his own monitor In these starved cases we must sometimes resort to the technic of Von Eiselsberg, viz at first merely bring up the jejunum under local anesthesia and feed through a tube in order that the reserves of the patient may be increased In this short paper it has been impossible to explain the reasons for many of the *steps suggested Our purpose has been rather to sum up in a* very practical way the present status of gastric surgery in the Lakeside Clinic

A ROENTGENOLOGIC STUDY OF THE GASTRO-INTESTINAL TRACT IN DIABETES

A REPORT ON SEVENTY-TWO CASES *

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Fellow of the American College of Surgeons, Associate Surgeon and Director of the Roentgen Department, Battle Creek Sanitarium
BATTLE CREEK, MICH

A toxemia of alimentary origin has long been considered one of the probable factors in the causation of diabetes The purpose of this paper is not to affirm or deny the validity of such a claim but to summarize the statistics in seventy-two cases recently examined through the courtesy of my colleagues, Drs C C Hubly and C S Staines, of the staff of the Battle Creek Sanitarium

The majority of diabetics give a history of constipation or, what is worse, constipation alternating with diarrhea Although most authorities urge the necessity of careful attention to intestinal hygiene as a part of the treatment of this malady, the literature contains very few articles dealing specifically with intestinal stasis as a cause of diabetes

Brosch[1] reported the necropsy findings in a patient of 60 who had died comatose and uremic with slight jaundice *The urine had shown large quantities of* sugar and albumin On opening the abdomen at postmortem it was evident that the pancreas had been compressed by the chronically distended large bowel

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* Read before the Section on Pathology and Physiology at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

[1] *Brosch* Virchows Arch f path Anat, 1912, ccviii, 426

The lower ileum contained fecal matter of light brownish color and of rather dense consistency As a result of his necropsy studies in this case, Brosch was convinced that the dilated part of the intestine above the obstruction exerted pressure on the descending part of the duodenum and that there had followed changes in the pancreas itself and in other neighboring organs

A C Jordan[2] feels sure there is a very definite relation between diabetes mellitus and chronic intestinal stasis He cites two interesting cases, both of which show marked ileac delay associated with kinking of the terminal ileum The so-called "writhing" duodenum was observed in one of the cases, in which there was also found gastric delay considerably longer than six hours

N Mutch[3] believes the determining factor in the production of diabetes mellitus is a chronic inflammation of the duodenum, generally associated with ileac stasis, which aggravates the condition in proportion to its severity By Roentgen examination and orthodiagraphic measurements, he found that the average vertical length of the duodenal shadow in healthy adults was 3½ inches, or the space of two lumbar vertebrae with their intervening disks In eleven cases of diabetes mellitus he found that this vertical length varied from 3 to 3½ vertebrae, or from 4½ to 5½ inches, and was accompanied by an increase in the diameter of the tube as well In one case examined after death, he found that the walls of the duodenum were thicker than normal, and that these changes extended down into the jejunum He believes that chronic duodenitis is the determining factor in the production of diabetes mellitus, and that ileac delay increases the severity of the disease by causing stagnation in the duodenum

Croftan[4] expresses the opinion that intestinal toxemia, causing prolonged injury to the liver and pancreas with the production of alimentary glycosuria, may be one of the factors in the production of permanent diabetes

Roentgen studies in the seventy-two cases on which this paper is based were carried out according to the definite routine which I established some years ago in the Roentgen department of the Battle Creek Sanitarium According to this routine the patient reports at the Roentgen department at 8 o'clock in the morning, having abstained from food or drink since arising, thus one is assured that he finds the patient with an empty stomach, and hence any residue in the stomach must mean gastric delay or hypersecretion No laxatives have been ordered, the patient having been instructed to refrain from laxative drugs or laxative means of any sort for the twenty-four hours preceding the examination, in other words, one attempts to examine the patient under the ordinary conditions of life

The test meal consists of 2 ounces of barium sulphate (especially tested for Roentgen-ray purposes) stirred into 14 ounces of Oriental buttermilk This the patient takes while being watched with the fluorescent screen Manipulation is carried out in both the horizontal and vertical positions, after which the patient is dismissed with instructions to return at the second, fifth, ninth and twenty-sixth hours for observation If the barium has not been evacuated at the twenty-sixth hour he is asked to return as many times as may be necessary to find the bowel completely emptied of barium residues These observations are made at the fiftieth and seventy-fourth, and if necessary at the ninety-eighth hour When the colon is seen to be emptied of the barium residues, the patient is told to return at 7 on the following morning, at which time the colon is emptied by means of three cleansing enemas, each of 1 pint, given one after the other, each one being retained for five minutes and expelled before the administration of the next After an interval of about two hours to allow the expulsion or absorption of water residues, the patient is given a colon injection consisting of 3 ounces of barium sulphate in a suitable vehicle, the total enema amounting to 2½ pints Rarely 3 full pints may be needed Thus the patient will have been seen on from eight to eleven different occasions, the findings being noted down from time to time by an attendant

The tests having been completed, the examiner is now ready to make his report This is dictated from the records made at the time of these various tests, with such aid as may be afforded by special roentgenographic records ordered at appropriate intervals during the examination

As a preliminary to the foregoing examination, before any barium has been given, the patient is sent to the roentgenographic room for two or three plates of the gallbladder region in the hope that gallstones, if present, may be identified In 1913, before the surgical section of this Association, I made the statement that gallstones could be recognized roentgenologically in 40 or 50 per cent of cases I based this statement on the finding of forty-eight cases of gallstones in 1,000 consecutive bismuth meal examinations I later analyzed a series of 300 consecutive laparotomies performed in the Battle Creek Sanitarium Hospital by Drs Kellogg, Harris and myself, in all of which a preoperative Roentgen examination had been made, finding that the Roentgen-ray report had been positive for gallstones in half the cases in which gallstones were found at operation In a series of 5,000 consecutive examinations in which the gallbladder was included (examinations of the alimentary tract, gallbladder, right kidney or lumbar spine), gallstones were identified roentgenologically in 5 per cent of all the cases

In our series of seventy-two diabetics, gallstones were found definitely in six cases, or 8 per cent, and in eight more cases there were very suspicious shadows, some of which were proved to be gallstones at subsequent operation Some criticism has been offered concerning our practice of reporting suspicious shadows Certain surgeons remarked that they did not operate on suspicion The only reply to such criticism is that we can see nothing else in an exploratory laparotomy than operation on suspicion We feel that these suspicious shadows should be reported, for if note is made of them, the surgeon will be more likely to exercise special care in palpating the gallbladder at operation Of course no operation should be based on the strength of Roentgen findings which are only suspicious unless clinical findings tend to confirm the suspicion Evidence of gallbladder region adhesions existed in twenty-six of our cases Hence we have a relatively high proportion of diabetic patients in whom the Roentgen evidence shows gallbladder region disease

In view of the close relationship between gallbladder and pancreatic affections, the significance of this high percentage of gallbladder findings in diabetes is obvious It may be remarked in passing that in a number of diabetics with gallbladder lesions, operation was performed for removal of stones or for chronic gallbladder infection, with very satisfactory results, several of the patients becoming entirely sugar free and remaining so

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[2] Jordan A. C. Proc. Roy Soc. Med 1915 viii Electro Therapeutical Section p 87

[3] Mutch N Practitioner London May 1915 p 712

[4] Croftan Med Rec. New York 1914 ii 1087

As might be expected in a series of cases presenting gallbladder region adhesions, we find a correspondingly large percentage of transverse stomachs, the unusual position being due in part to hepatofixation It should be remembered, however, that one frequently finds a transversely placed stomach in the more or less obese persons who comprise the major proportion of our diabetic cases Carcinoma of the stomach was found in two cases, not including two other cases in which carcinoma of the pancreas was determined

The emptying time of the stomach was unusually rapid, being considerably less than four hours in forty-six cases, less than five hours in sixty cases, and less than six hours in seventy cases In the two remaining cases the emptying time was seven and seven and one half hours, respectively In both there was found tumor of the pancreas, one of which at least proved to be carcinomatous

These findings in relation to the motor functions of the stomach agree very well with the clinical studies of various investigators Gilbride[5] found that the motility of the stomach is usually increased and gastric secretion diminished It is commonly known that with diabetics one cannot wait the usual forty-five minutes to aspirate the stomach contents after the Ewald test breakfast In order to obtain any stomach contents the aspiration must be performed in thirty minutes, and in some cases at the end of twenty minutes It is possible that the low hydrochloric acid content of the gastric juice in diabetes is in some way responsible for the development of this disease

In view of the work of Mutch and Jordan, already referred to, considerable interest centers in the question of duodenal stasis In our series duodenal stasis was observed in only one instance, although a special effort was made to confirm the findings reported by the authorities just named Perhaps the discrepancy in our findings is due to a difference in definition of duodenal stasis It would seem that duodenal stasis should imply the retention of barium residues in the duodenum for a time perceptibly longer than that required to empty the stomach, but, as stated above, such delay was noted in our series in only one case In many instances the duodenum was widely filled, but so also was the jejunum, the wide filling being no greater on the proximal side of the duodenojejunal junction than on the distal side To find the upper small bowel, both duodenum and jejunum, well visualized is common where the gastric juice shows low hydrochloric acid values, it seems to be due to the rapid outpouring of material through the pylorus characteristic of this condition

In occasional instances (about twenty-five cases in 5,000 consecutive barium meals) we have found barium in the ampulla of Vater Sometimes the shadow of the ampulla thus visualized was no larger than a pea, in other instances the shadow measured as much as 4 cm in diameter, and the barium has been retained from three to four days Elsewhere I have discussed the probable significance of this visualization of Vater's ampulla[6]

It would seem that if duodenal stasis were common in diabetes we should find among them a large proportion of cases of visualized ampulla of Vater, but in our series of seventy-two cases the visualized ampulla, though carefully searched for, was not recognized in a single instance Conversely, none of the twenty-five or more cases in which the dilated ampulla was observed were diabetics

Diverticulum of the duodenum is a rather uncommon finding under any circumstances, and up to 1911 only eighty cases were to be found in all the literature, including postmortem records In the reference last given,[6] I reported eight cases discovered roentgenologically Up to the present writing I have detected diverticulum of the duodenum other than the dilated diverticulum of Vater in thirteen patients, but none of them have been diabetics

Careful observation of the duodenal shadow has failed to impress us that there is any characteristic change in the dimensions of the duodenum of diabetics as compared with normal individuals

The finding of barium residues in the terminal ileum at the ninth hour may be considered as signifying abnormal delay There is, of course, a normal retardation of chyme in the terminal ileum for a short period before the cecum begins to fill, this normal delay being comparable to the delay of food in the stomach Just as food is held in the stomach to be served out in small quantities through the pylorus, so the chyme is detained in the terminal ileum to be served out at appropriate intervals through the ileocecal sphincter, but if the delay in the terminal ileum exceeds the ninth hour, we may say that the patient exhibits ileac stasis—slight, if only a few inches be filled, marked, if 2 or 3 feet of the ileum still retain barium shadows, extreme, if barium residues are found in the terminal ileum at the twenty-sixth hour The accompanying tabulation will permit a ready appreciation of the degree of ileac stasis in a series of mild cases and in a series of severe cases of diabetes

DEGREE OF ILEAC STASIS IN BOTH MILD AND SEVERE CASES OF DIABETES

Case No	Mild Cases Degree of Ileac Stasis	Case No	Severe Cases Degree of Ileac Stasis
5	0	3	++
8	0	4	++
9	0	14	++
15	0	16	++
26	0	17	+++
28	0	18	+++
31	++	23	+
34	0	25	+
35	0	30	0
47	0	40	+
50	0	42	0
52	0	46	+
53	0	60	0
58	0	61	++
59	0	63	++
66	0	68	+
67	++	69	+
		71	0

Of the mild cases, the patient in Case 67 became sugar free very quickly, and she was able to remain so even on a fairly liberal diet Case 31 was complicated by a serious neurologic condition attending syphilis

Of the severe cases, the patient in Case 30 suffered from diarrhea Case 42 had gallstones, Case 60 also had gallstones The patient in Case 71 died suddenly, not in coma, the exact cause of death not being explained The carbon dioxid tension was very low

It is strikingly apparent that ileac stasis is a characteristic of severe cases of diabetes It is probable that my conservative definition of ileac stasis explains why the stasis is not more apparent even in the mild cases

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[5] Gilbride, J J The Functions of the Stomach in Diabetes Mellitus, The Journal A M A, Feb 18, 1911, p 497

[6] Case, J T Am Jour Roentgenol, June, 1916

A tabulation showing the competency or incompetency of the ileocecal valve in this series reveals nothing characteristic for the mild as contrasted with the severe cases The majority of patients, both mild and severe cases, show incompetency of the ileocecal valve Of the twenty worst diabetics the ileocecal valve was incompetent in thirteen and competent in seven Of the twenty mildest cases the ileocecal valve was competent in ten and incompetent in ten We have not arrived at any satisfactory means of determining the degree of incompetency except that it has been noted that in these cases with most marked ileac stasis, incompetency of the ileocecal valve permitted the enema to fill an unusually large portion of the terminal ileum, and following the meal there was often observed a regurgitation of ingested food from the cecum back into the ileum after the ileum had once been emptied

Adhesions of the terminal ileum were found in eighteen of the seventy-two cases, or exactly 25 per cent A careful scrutiny of the protocols fails to show any constant relation between the severity of the diabetes or the degree of ileac stasis and the presence or absence of adhesions of the terminal ileum

Eight of the cases of terminal ileum adhesions were found in the twenty worst diabetics, four in the twenty mildest diabetics

Marked spasticity of the distal colon was found in forty-six of the seventy-two cases Proximal colon stasis was especially marked in fourteen cases Adhesions about the appendix were found in a somewhat larger proportion of severe cases than of mild cases, but here again there is no constant relation between the severity of the disease and the severity of the appendical involvement as shown with the Roentgen ray, except that a slightly larger proportion of appendical involvements occur in the severe cases

The average emptying time of the colon in the twenty worst cases was forty-eight hours The average emptying time of the colon in the twenty mildest cases was thirty-six hours Under the circumstances of our tests the emptying time of the normal colon should be about thirty-four hours

Carcinoma of the colon was found in two cases and removed surgically in both cases One patient died in coma about ten days after the operation, the other is still alive and is sugar free

The foregoing studies were not undertaken with the idea of criticizing the work of any one else, but rather to make a tabulation of the actual findings in the large series of cases which fortunately was available for this investigation In summarizing the findings, special emphasis is drawn to the following points

1 Gallbladder involvements are very common in diabetes, especially gallbladder lesions attended by pericholecystic adhesions

2 The stomach empties itself with unusual rapidity in the average case of diabetes

3 In our series duodenal stasis was a rare finding, being observed only once

4 An increase in the dimensions of the duodenum, either in length or caliber, was not observed

5 There is a striking relation between the severity of the disease and the degree of ileac stasis

6 Ileocecal valve incompetency is a common finding in diabetics, but we were unable to discover any definite relation between the degree of ileocecal valve incompetency and severity of the disease

7 Adhesions of the terminal ileum, stasis in the cecum and evidences of appendical disease were somewhat more frequent in the severe cases than in the mild cases of our series

8 The average emptying time of the colon in diabetics is delayed in about the same proportion of cases as one would expect from a perusal of the clinical histories A majority of the patients show a low grade of colonic stasis Extreme colonic stasis was found in only two instances, and both of these showed carcinoma of the distal colon

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DIRECT AND INDIRECT HAY-FEVER

PRELIMINARY REPORT OF THE RESEARCH DEPARTMENT OF THE AMERICAN HAY-FEVER-PREVENTION ASSOCIATION ON THE ETIOLOGY OF HAY-FEVER

W SCHEPPEGRELL, AM, MD
President American Hay Fever Prevention Association
NEW ORLEANS

In previous reports,[1] it was stated that the reaction of hay-fever was influenced by the physical formation of the pollen I did not, however, dwell on this part of the subject, as the object of both of these reports was to emphasize the relation of pollen to hay-fever with a view of developing interest in its prevention

As the form of hay-fever and the cause of the reaction, however, have an important bearing on the treatment of this disease, it has been decided to report, at this time, the results of our investigations on this subject, leaving the question of the therapy based on these investigations, which are not yet completed, for a future report

HAY-FEVER REACTIONS

In testing subjects for the hay-fever reaction it has been frequently observed that the reactions produced by different pollens vary in character, this being attributed to different degrees of susceptibility of the patient to various plants In the course of these investigations, in which many hundreds of tests were made, it was soon noted that there appeared to be a marked uniformity of this variation in most subjects, indicating that the difference might be in the pollens and not in the patient

Two Classes of Pollen —Further investigations demonstrated that this was the case Microscopic examinations show that there are two physically distinct classes of pollen the first, in which the outer coat (extine) is covered with minute spicules (Fig 1), and the other in which these are absent (Fig 2)

The spiculated pollen grains are usually spherical, as in the ragweeds (*Ambrosia elatior, trifida* [Fig 1], *psilostachya*, etc), cocklebur (*Xanthium americanum, pennsylvanicum, spinosum*, etc), false wormwood (*Parthenium hysterophorus*), and marsh elder (*Iva ciliata, axillaris*, etc) Sometimes, however, these are ellipsoidal, as in the black-eyed Susan (*Rudbekia hirta*), mayweed (*Anthemis cotula*), horseweed (*Erigeron canadensis*), etc They vary in size from the common ragweed (*Ambrosia elatior*) 15 microns[2] in diameter to the hibiscus (*Hibiscus palustris*), which measures 170 microns

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[1] Scheppegrell W Hay Fever and Its Prevention Pub Health Rep July 21 1916 p 1907 The Cause Prevention and Treatment of Hay Fever Med Rec New York 1916 xc, 95

[2] Micron is 0 001 millimeter

The unspiculated[3] pollens vary greatly in size The smallest that we have tested is the pollen of the Carolina plum (*Prunus caroliensis*), which measures 2 microns in diameter The largest is the corn pollen, which measures 80 microns They also vary greatly in shape, being usually more or less ellipsoidal but frequently spherical (Fig 2), as in most of the grasses, four or five-sided as in the sedges, or complex in shape, as in the evening primrose

Reaction of Spiculated Pollen—A series of tests demonstrated that all spiculated pollens, of which the ragweeds (*Ambrosia elatior, trifida* and *psilostachya*) form the type, invariably produce a reaction when inhaled by hay-fever subjects sensitive to any one of these spiculated pollens In over 100 varieties of pollens that have been tested, not a spiculated pollen failed to give a reaction in such a subject

The only question to be decided with spiculated pollens is whether or not they are wind-pollinated, that is, found naturally in the atmosphere[4] If this is the case, it is a cause of hay-fever for such sensitive subjects coming within the radius of the air which is infected Among the plants which have been tested, and which are wind pollinated and have spiculated pollen, are the following common ragweed (*Ambrosia elatior*), giant ragweed (*Ambrosia trifida*), rough wild elder (*Iva ciliata*), cocklebur (*Xanthium americanum*), false wormwood (*Parthenium hysterophorus*), etc

The reaction from spiculated pollens in a sensitive subject is prompt, active and usually within two minutes When it does not take place in three minutes, the patient is either not sensitive to the pollen, or the pollen has not reached the nasal mucus and the test should be repeated

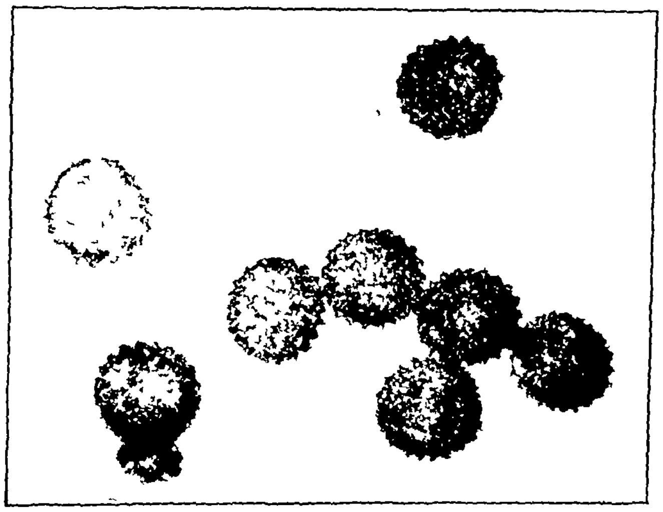

Fig 1—Spiculated pollens of ragweeds (ambrosias) low in protein

The character of the reaction bears a direct relation to the length of the spicules of these pollens In the common ragweed (*Ambrosia elatior*), in which the spicules are 2 1 microns in length, and the giant ragweed (*Ambrosia trifida*), in which they are 2 8 microns, the reaction is prompt and active In the cocklebur (*Xanthium americanum*) and the rough wild elder (*Iva ciliata*), the spicules are shorter, being 0 7 and 0 5 microns, and the reaction is proportionately less active than with the ragweeds (ambrosias)

Reaction of Unspiculated Pollens—The reactions from unspiculated pollens are delayed and less marked, although they may be quite prolonged They are caused not by local irritation but by the absorption of the protein contents of the pollen In the grass pollens, which have a high percentage of protein, the reaction is positive In the sedges, pine, palmetto, etc, in which the pollens are smooth, but contain an inappreciable amount of protein, the reaction is negative In the careless weed (*Amaranthus spinosus*), goose foot (*Chenopodium anthelminticum*), yellow dock (*Rumex crispus*), and other weeds of this class, the protein is low and the reaction is correspondingly mild

The tests also demonstrate that all pollens high in protein (unspiculated), of which the grasses form the type, invariably produce a reaction when inhaled by a hay-fever subject sensitive to any one of such pollens

Sensitization to both spiculated pollens and to (unspiculated) pollens high in protein is general, but varies with individuals, most persons being more sensitive to the former but some to the latter The development of the disease from one or the other, however, usually depends on the proximity of the infecting weeds or grasses

After the foregoing facts had been established, the character of the reaction could be predicted from the microscopic examinations of the pollen The microscopic examinations should always precede the biologic test of pollens Recently (August 20) a wild rose was sent from North Carolina to be tested and was found to contain seven times as many spiculated ragweed pollens as its own smooth pollens During the active pollinating season of the ragweeds, the infection of other flowers with the ragweed pollen is of common occurrence, and a biologic test without a microscopic examination may be misleading

Reagents for Protein—In making the protein test in pollens, many reagents have been tried and also the polariscope Eventually, however, the iodin test was found the most simple and practicable As iodin is almost insoluble in water, the following solution is used

Iodin crystals	5 grams
Potassium iodid	10 grams
Distilled water	1 fluidounce

A drop of this is applied by means of a pipet to the edge of the cover

The iodin reaction should be tested by means of condensed reflected light, a white porcelain plate being used as a substage In this way, the diffusion of transmitted light through the pollen is avoided, and the contrasting colors are more easily detected

Protein Reaction in Grass Pollens—The iodin test shows that all the grasses (*Grammeae*) including corn, rye and rice,[5] are rich in protein With this stain, the pollens rapidly become light blue, which gradually darkens until they become almost black (Fig 2) Pollens without an appreciable amount of protein show only the yellow-brown stain of the iodin Pollens with a low percentage of protein, as the careless weed (*Amaranthus spinosus*), yellow dock (*Rumex crispus*), goose foot (*Chenopodium anthelminticum*), etc, are stained violet, the shade indicating the degree to which protein is present In some pollens, such as the western water hemp (*Acnida tamarascina*), however, the blue is confined to a small part of the pollen, showing quite distinctly from the remaining protein

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[3] "Smooth pollen" in these cases would not be exact, as many of the unspiculated pollens have lines, grooves and other irregularities

[4] An instrument called the anemophilometer has been devised by this department in which the wind pollination of plants can be artificially tested

[5] With these exceptions the cereals are not wind pollinated and do not cause hay fever The rarity of corn as a cause of hay fever in the cities and suburbs is partly due to its being uncommon and partly to the size of its pollen (80 microns) Under the same conditions that the common ragweed pollen will be carried by the wind one half mile, the corn pollen will travel only 43 feet (From our table of potential areas of hay fever plants)

Negative Tests for Protein in Ragweed Pollens.—With spiculated pollens, the iodin tests have invariably been negative, indicating an inappreciable amount of protein. A large number of tests have been made with these pollens, as the primary irritation from the spicules did not preclude the possibility of a secondary reaction from protein. In every case, however, the iodin test gave a negative result.

All pollens are furnished with some means by which their ripened contents may be expelled. In most cases, this is accomplished by means of small holes, called "pores," through which the pollen tube, which is the development of the interior coat (intine) of the pollen, is projected for fertilizing the pistil, or fertile part of the flower. In other cases, small lids are pushed up by the pressure of the contained matter, and in others, the thinner walls allow the projection of the germinating tube.

In order to ascertain, however, that the iodin reaction is not interfered with by the coats of the ragweed pollens, some of these were crushed in order to express the fovilla, the protoplasmic contents of the pollen grain.

This, however, proved to be difficult on account of the high resistance of these pollen grains. While the grass pollens have so light a coat that they are frequently crushed in the ordinary process of mounting, the ragweed (ambrosias) pollen grains resist pressure between two glass slides carried to the point of crushing the glass. Eventually, the pollens were broken by forcibly rubbing them with the handle of an instrument, and even this resulted only in an occasional pollen grain being crushed. The iodin test was then again applied, but the expressed contents of the pollen showed no difference with the iodin test.

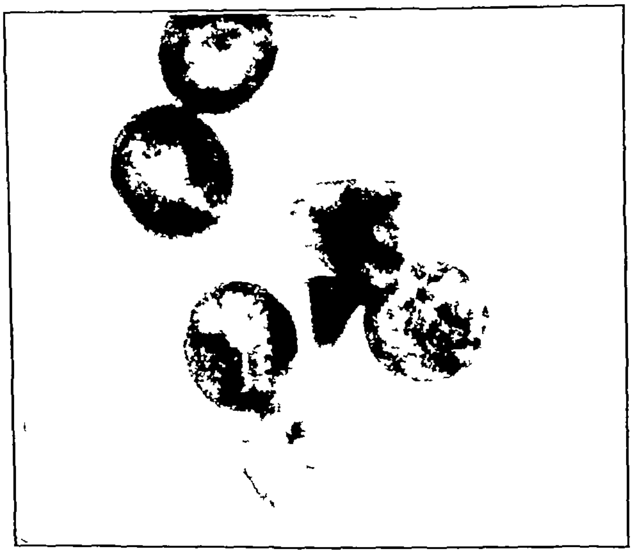

Fig. 2.—Unspiculated pollens of grasses (spherical) high in protein and sedges (prismatic) low in protein.

Reagents for Glycerin Plates.—The iodin test forms a routine method in the examination of glycerin plates. These are placed in various localities and altitudes in order to ascertain the number and varieties of pollen present in the air. The iodin stains the glass pollen blue, the spiculated pollen yellow-brown, the pollen of low protein bluish-brown and the innocuous smooth pollens yellow-brown. As the glycerin plate is passed across the optical field by means of the mechanical stage, these stains greatly simplify the quantitative and qualitative count.

Two Forms of Active Pollen.—As the result of these investigations, we find that there are two forms of active pollens. The first and most important form is the spiculated pollen, low in protein, and the second, unspiculated pollen rich in protein. Other pollens without spicules and with but a small percentage of protein form a minor and less important division of the second class.

In the ragweeds (*Ambrosia elatior* and *trifida*), which are the cause of 85 per cent of the autumnal and most severe form of hay-fever in the section of the United States east of Kansas,[6] the spicules are well developed. In the former (*Ambrosia elatior*), 15 microns in diameter, the spicules are 2 microns, and in the *Ambrosia trifida*, 20 microns in diameter, the spicules are 2.8 microns in length. The effect of these spicules is prompt, active reaction in a sensitive nostril. The severity and duration of this reaction depend on the degree of sensitiveness of the mucous membrane and the number of pollen grains inhaled. In most sensitive nostrils, the effect of the inhalation of from five to ten pollen grains will pass off in thirty minutes, but several hundred pollen grains, which form an almost invisible cluster, will cause a reaction lasting from one to fifteen hours.

In an atmosphere in which there are many pollen grains which are kept floating by means of the wind, enough are usually inhaled to prolong the attack until the end of the season, unless this is interrupted by a rain, destruction of the weeds producing the pollen, by removing the infected area, or by raising the resistance of the patient.

Increased Susceptibility Versus Anaphylaxis.—The increased susceptibility of the patient to pollen after the first inhalation of spiculated pollen is not due to anaphylaxis but to the increased sensitiveness of the nostril resulting from this irritation. The sensitiveness which causes him to react to the first pollen inhaled probably also persists and conduces to this susceptibility.

Influence of Size of Spicules.—In the cocklebur, which is next in importance to the ragweed of the spiculated pollen, the spicules are relatively and actually shorter than those of the ragweed pollens, being 0.7 microns in length, the shorter length resulting in a much less pronounced reaction and one of shorter duration. The less extended distribution of the cocklebur, as compared with the ragweed, also makes it of less importance than the ragweeds, except in sections in which the cocklebur is found but not the ragweed. In some of these places the development of hay-fever followed the advent of the cocklebur.

The small number of cases due to the cocklebur also results from the large size of this pollen. It is 36 microns in diameter as compared with the 15 microns of the common ragweed. The result of this is that the pollen of the cocklebur will be carried on level ground 700 feet in a wind of 20 miles an hour, while the ragweed under the same condition will be carried 3,015 feet.[7]

The marsh elder (*Iva ciliata*) also has a spiculated pollen grain whose length is much shorter than those of the ragweed, being 0.5 microns in length. As with the cocklebur, the reaction on this account is less

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[6] West of Kansas the ragweeds are replaced by the Iva xanthifolia called the giant ragweed and the western ragweed (*Ambrosia psilostachya*).

[7] A table giving the distances that wind borne pollens will be carried by winds of different velocities will be given in another report.

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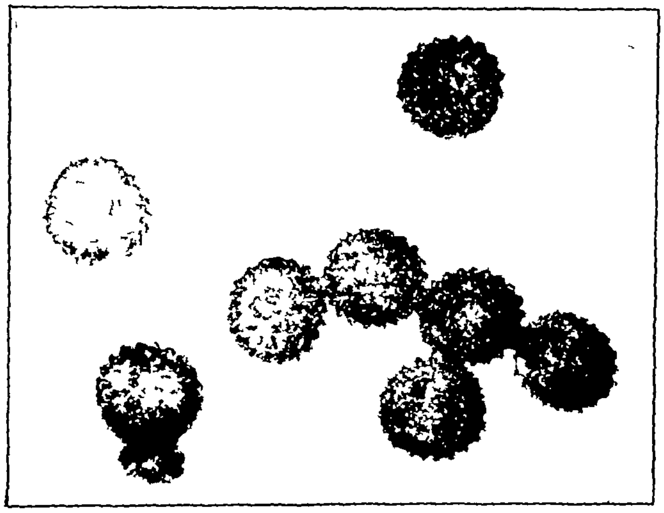

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Reduction of Infected Area.—The cutting of the weeds in the neighborhood of the patient's residence is of the first importance. In a neighborhood in New Orleans, the cutting of the weeds in one neglected square resulted in four known hay-fever patients in this immediate neighborhood being entirely without hay-fever the following season.

In the treatment of hay-fever, the patient is first given a glycerin plate to collect the infecting pollen for identification, and to determine whether it is spiculated or unspiculated. An inspector is then sent who makes a "thirty-six square inspection," which includes three squares in each direction from the residence of the patient. In most cases examined thus far, the infecting weeds were found in this survey. The lots having neglected grass and weeds are then reported to the health officer, who files affidavits for violations of the grassweeds ordinance.

These suggestions regarding treatment have given uniform satisfactory results, a full report of which will be given at the end of the season.

CONCLUSIONS

There are two forms of pollen causing hay-fever: the first, spiculated in form and low in protein, causing direct hay-fever; the second, unspiculated in form and high in protein, causing hay-fever by absorption of the protein (indirect hay-fever).

In direct hay-fever, the severity of the attack and its duration depend on the number of pollen grains in the atmosphere, and the length of the pollen spicules. The ragweeds form the type and the principal cause of this form of hay-fever.

In indirect hay-fever the severity of the attack and its duration depend on the amount of protein contained in the pollen and on the number in the atmosphere. The grass pollens have the highest percentage of protein, and form the type and the principal cause of this form of hay-fever.

Pollens without spicules and with an inappreciable amount of protein are innocuous in hay-fever.

The Field of Chemistry.—Modern chemistry has had a manifold origin and tends toward a many-sided destiny. Into the fabric of this science men have woven the thought of ancient Greek philosophers, the magic of Arabian alchemists, the practical discoveries of artisans and ingenious chemical experimenters, the doctrine of physicists, the stern and uncompromising logic of mathematicians, and the vision of metaphysical dreamers seeking to grasp truths far beyond the reach of mortal sense. The complex fabric enfolds the earth—indeed the universe—with its far-reaching threads. —T. W. Richards: Ideals of Chemical Investigation.

BRACHIAL PLEXUS SURGERY*

ARTHUR AYER LAW, M.D.
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MINNEAPOLIS

The present European war, with its colossal total of wounds, many of which inevitably involve the peripheral nerves, has aroused an added interest and stimulated additional research in the surgery of this system.

Brachial plexus injuries in the adult, aside from those resulting from gunshot or stab wounds, or secondary to skeletal injuries, are rare, as was shown in 1911 by Frazier and Skillern,[1] who were able to collect reports of only twenty-one cases which had been verified by operation. Anatomically the brachial plexus, located almost subcutaneously in the root of the neck and unprotected by the skeleton, is vulnerable to direct injury. Direct trauma used to be considered the most frequent cause of injury to these nerves until experimentation by Horsley[2] and Taylor,[3] and a closer study of etiologic mechanics convinced observers that injury of the plexus did not frequently result from pinching them between the clavicle and first rib, but rather from their forcible avulsion, which tore the cords out by the roots, in the intravertebral and intervertebral cases, and ruptured them anywhere between the spine and axilla in the supraclavicular or infraclavicular types.

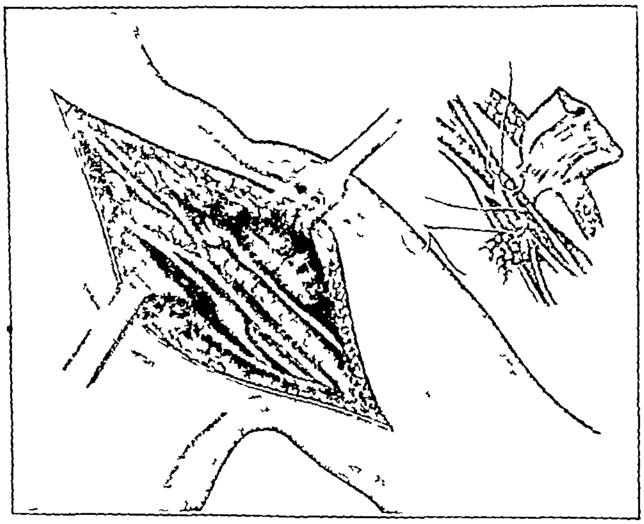

Fig. 1 (Case 1).—Avulsion of musculocutaneous and musculospiral nerves. Inset shows end to end and end to side or crossed anastomosis.

The relatively large number of so-called cases of "birth palsies" in infants, which at present are being reported, lend confirmatory evidence that avulsion of the brachial plexus trunks comes from indirect violence, for here the upper cords of the plexus are torn asunder or out of the foramina themselves, by extreme traction of the shoulder away from the head in the birth of the child. When the lower cords are injured, this results from breech presentations in which the arm is stretched up over the shoulder and the lower cords are put severely on the stretch, probably over the head of the humerus. Again, there are the reported cases in adults when heavy objects like trees or timbers fall on the shoulder and pull it away from the neck, as in Murphy's case,[4] or when men are thrown onto their shoulders, violently separating the neck from the shoulder as in Peck's case,[5] or in falling from a height and clutching at something to break their fall, their arm is violently abducted and pulled above the head, as reported by Brislow,[6] or, as happened in both of my cases, the patient's arms are caught in belts and they are pulled into and whipped forcibly over pulleys, the arms being jerked away from the bodies, and in one instance the man being thrown heavily against a post, striking on the root of his neck All of this accumulated evidence disproves the theory of direct violence

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Frazier, C. H., and Skillern, P. G.: Supraclavicular Subcutaneous Lesions of the Brachial Plexus Not Associated with Skeletal Injuries, The Journal A. M. A., Dec. 16, 1911, p. 1957.

[2] Horsley, Sir Victor: Practitioner, London, 1899, lxiii, 136.

[3] Taylor, R. W.: Med. News, 1905, lxxxvi, 1013.

[4] Murphy, J. B.: Surgical Clinics, 1912, i, 339.

[5] Peck: Ann. Surg., 1911, liii, 858.

Successful surgery of the brachial plexus, as of any of the peripheral nerves, is dependent on the application of our present day relatively exact knowledge of the phenomena of regeneration in the peripheral segments of severed spinal nerves, which occurs when that segment is united to the viable central segment, and furthermore on an appreciation of the property which nonmedullated neuraxons have of projecting themselves through space and reaching across a gap separating the severed nerve stumps, when properly guided and conducted by some method of tubulization, preferably of fascia, as in my[7] case in which the musculospiral nerve completely regenerated across a space of 3 inches through a fascia lata tube Lewis'[8] recently reported observations as to how the nonmedullated neuraxons are conducted by and follow protoplasmic bands, which span this gap and originate from both stumps, are added evidence which opens up a fascinating realm of surgical opportunity and offers relief in the class of cases which have heretofore been considered hopeless

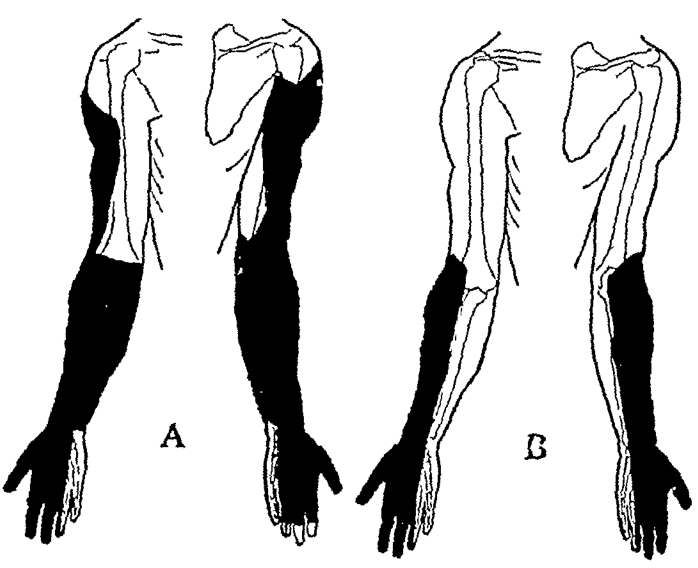

Fig 2 (Case 1) —Dark areas indicate extent of anesthesia *A*, before operation, and *B*, thirteen months later

After the severance of a nerve, both stumps undergo neuromatous degeneration, and scar tissue infiltrates the retracted clubbed ends and for a greater or less distance invades the nerve trunks Serial sections of these clubbed ends ultimately expose the brush ends of the nerve fibers If, then, these exposed and cleanly cut across fibers are approximated end to end and protected from the ingrowth of connective tissue by wrapping the union with a fascial or fat flap, we expect complete regeneration of the peripheral nerve, provided the central ganglionic cells are intact

It is illuminating to know that it is entirely possible to make one highly specialized motor nerve carry impulses to a paralyzed group of muscles served by another injured or degenerated nerve, provided the paralyzed peripheral nerve segment is anastomosed with the proximal segment of the healthy nerve This restoration of function is possible through a reeducation of the cortical centers (adjacent to or remote from one another) which enables them to meet the needs and respond to the peripheral necessity Much research by many observers has clinched the conviction that this reeducation is entirely feasible, as is shown in the observations of Flourens[9] on the crossed anastomosis of the brachial plexus in cocks, those of Rawa[10] on cats, and of Kennedy[11] and Murphy[12] on dogs, most of these observers reporting practically perfect results Schiff[13] crossed the hypoglossal and vagus nerves and found return of motion in the muscles of the tongue In the experimental surgical laboratory of the University of Minnesota, Dr Corbett and I cross anastomosed the various nerves of the brachial plexus in five dogs, wrapping the line of union with fascial flaps or vein cuffs So perfect was the reeducation that at the end of five months it was difficult to determine which side had been operated on

The clinical application of these laboratory findings has yielded excellent results, as demonstrated by the spinofacial and spinohypoglossal anastomoses, as originally suggested by Ballance and Stewart,[14] and carried out so successfully by Cushing[15] and other surgeons Here restoration of function of the muscles of facial expression is more or less perfectly accomplished by reeducation of the brain centers, until that occurs and sometimes permanently, associated movements of the shoulder and face or of the face and tongue persist Grant's[16] remarkable result following spinofacial anastomosis, with the attendant anastomosis of the distal accessory fragment to the descendens hypoglossi, opened a new field of endeavor, for here the motor nerves arising from the first and second cervicals and running in the sheath of the hypoglossal with their centers, were reeducated to control the trapezius and do away with associated shoulder and face movements

The success of these anastomoses and the reported success of the anastomosis between the anterior tibial and musculocutaneous nerves by Spiller and Frazier[17] and Young,[18] and between the external and internal popliteal by Murphy[19] and Kader[20] in cases of infantile paralysis, give more than enough evidence to warrant the expectation of more or less perfect restoration of function, whether the nerves crossed be a part of the brachial or lumbar plexus or any of the peripheral nerves of highly specialized function

Nerves which are forcibly avulsed are injured in a vastly different manner than those which are deliberately or accidentally cut cleanly across by a sharp instrument In the avulsed trunks the bundles of neuraxons are torn at different levels and are frayed and pulled apart and severely traumatized, the endoneural blood vessels are torn, hemorrhage occurs in the sheath, and this with the trauma of the accident and the hemorrhage about the nerves results in the

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[6] Brislow, A F Ann Surg, *1902*, xxxvi 411

[7] Law, A A Some Modern Phases of Neural Surgery, St *Paul* Med *Jour*, *September*, 1915

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secondary formation of scar tissue, either in the nerve sheaths themselves or about them Later, scar contraction results in multiple neuromatous nodules of the trunks, which prevents the projection of the proximal axones into the distal segments, or the contraction of the perineural connective tissue strangulates the fibers to the extent of partially or wholly interfering with conduction, which inevitably is followed by trophic changes and motor and sensory paralysis

One type of injury or neuritis which has been thoroughly studied by surgeons and neurologists is that caused by pressure on the lower cords of the brachial plexus by supernumerary ribs This results in a pinching of the nerves in the angle formed by the scalenus anticus muscle and the cervical rib, this pinching being accentuated by the constant hammering from respiratory movements A phase of this type of injury which seems to have escaped attention is caused, not by an adventitious rib, but by a supernumerary band or ligament taking the place of the rib and springing from the seventh cervical transverse process, projected forward and inserted either into the first rib with the scalenus anticus, as occurred in one of my cases, or into the interclavicular ligament, as happened in the other

In both of my cases at operation, accessory ribs were absent The seventh cervical transverse processes, however, seemed in the roentgenograms to be drawn down closer to the first dorsal transverse process on the affected side In both instances these ligaments were extremely taut, and tightly stretched over them and sharply angulated were the eighth cervical and first dorsal cords of the brachial plexus, the tension on which was immediately relieved when the ligaments were cut This condition gave the typical peripheral symptoms in the hand, which are so characteristic of cervical ribs and the coincident brachial neuritis In one of these cases, the trophic changes in the phalanges of the middle finger on the affected side were interesting to note Comparative roentgenograms of both hands showed marked rarefaction of these bones, which was apparently identical with the picture of disuse atrophy

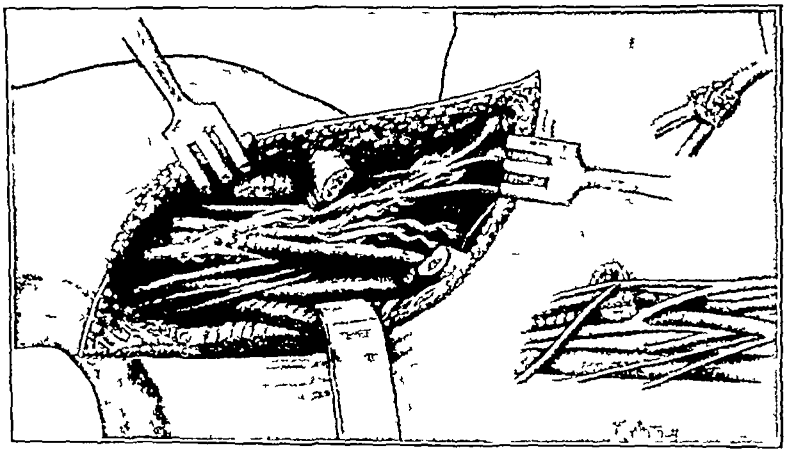

Fig 3 (Case 2) —Avulsed nerves of brachial plexus neuromatous nodules and scar tissue about plexus Insets show transposition suture and wrapping of the line of union with free fascial flaps

Symptoms of brachial plexus injury or rupture are of course dependent on where the cords are injured In the upper arm or "Erb-Duchenne" type, this injury generally occurs to the fifth and sixth branches proximal to the origin of the suprascapular nerve, and therefore the supraspinatus and infraspinatus are paralyzed The characteristic atrophy of these muscles occurs along with inward rotation of the shoulder and arm until the hand and forearm is in extreme pronation Winging of the scapula when the arm is held horizontal and pushed on is shown when the injury is high enough to be above the origin of the long thoracic nerve, and is caused by paralysis of the serratus magnus muscle Coincident with the paralysis of the shoulder girdle may be paralysis over the distribution of the posterior cord arising from the seventh cervical with branches from the fifth and sixth Here, of course, the deltoid, biceps, coracobrachialis, triceps brachialis anticus, supinators of the forearm and extensors of the wrist and fingers may be involved

In the "Klumpke" or lower arm type, the eighth cervical and first dorsal branches are involved, and the symptoms are manifested in the areas supplied by the median ulnar, cutaneous and lesser internal cutaneous nerves, while the enervation to the upper arm and shoulder may be intact This type is more uncommon than the former, and is liable to be accompanied by injury to the sympathetic system owing to loss of the celiospinal fibers which join it, coming from the first and second dorsal nerves and occasionally from the eighth cervical

Injury to these fibers results in a typical series of symptoms, namely, narrowing of the palpebral fissure, or pseudoptosis, from paralysis of the nonstriated muscle fibers of Muller[21] in the upper lid, and enophthalmos, or sinking of the eye from paralysis of the nonstriated microscopic muscle fibers, described by Landstrom,[22] which are found in the fascia behind the eyeball and attached to the capsule of Tenon also a contraction of the pupil on that side due to predominance of the motor oculus Anhidrosis of this side of the face and neck may be observed from loss of sympathetic control of the sweat glands These symptoms are generally an indication of an intradural avulsion

In the cases in which all the cords have been avulsed high within the dura or foramina, the persistence of sensation on the inner side of the upper arm is explained by the loops of communication between the nerves of Wrisberg and the intercostohumerals with the first, second and third intercostal nerves, which cannot be injured by avulsion

In addition to the twenty-one cases of avulsion in adults verified by operation and collected up to 1911, we have found two other cases reported by Hartwell[23] and Murphy[4] These with my own two cases with operation swell the total to twenty-five These injuries in adults are so rare that it is not given to any one surgeon to see a large series Therefore I am constrained to report my cases somewhat in detail

REPORT OF CASES

Case 1 —G H man, aged 23, Dec 5, 1914 while working in a flour mill got his left arm caught in a large belt which picked him up and whipped him over a pulley before he was thrown off This injury resulted in an immediate paralysis of all extensors of fingers and wrist, and of the supinators and the triceps The biceps, coracobrachialis and brachialis anticus were paralyzed as well Anesthesia existed on the anterior and posterior aspects of the upper arm from the middle of the deltoid to and including the elbow and over all of the forearm and hand, save on the ulnar side of the hand, from the midline of the ring finger, front and back, and extending up to the wrist. There was sensation over the first phalanges of the first, second and third fingers on the dorsum. There was sensation on the inner side of the upper arm, beginning 2 inches above the elbow. The shoulder girdle was intact with the exception of the deltoid, which was

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[21] Muller Ztschr f Zool 1858 Worzb Verhandl 1859
[22] Landstrom Ueber Morbus Basedowii 1907
[23] Hartwell J A Ann Surg 1914 lx 316

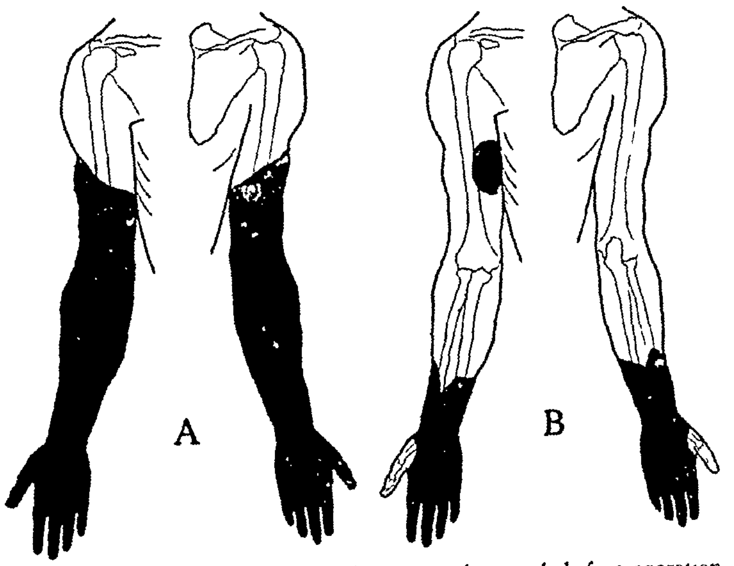

Fig. 4 (Case 2).—Dark areas indicate anesthesia: *A*, before operation, and *B*, four months later.

paralyzed. This injury, then, was of the mixed type, and obviously involved the musculocutaneous below the outer head of the median, and the musculospiral above the origin of the circumflex.

There were no symptoms of sympathetic involvement, and all the muscles involved showed the reaction of degeneration prior to operation. April 29, 1915, or four and one-half months after the injury, the clavicle was sawed in two and an anatomic dissection of the brachial plexus made. This revealed a tortuous neuromatous scar of the musculocutaneous nerve, beginning just distal to the outer head of the median. The proximal stump of the musculospiral could not be recognized, and the distal stump was clubbed and retracted 3 inches from its normal origin. All other cords and their branches, save the musculocutaneous and musculospiral, responded normally to a faradic exciter. The neuroma of the musculocutaneous was resected by serial sections for 3 cm until the normal fasciculi of both stumps were determined, when the stumps were approximated with fine chromic gut sutures. The line of union was then wrapped with a pedicled fascial flap from the stump of the pectoralis major. The clubbed distal end of the musculospiral was resected and this nerve implanted by end-to-side anastomosis into a slit in the side of the median nerve and anchored there with chromic gut, the line of union being wrapped with a pedicled flap of axillary fat. The sectioned clavicle was drilled and united with kangaroo tendon.

Now, thirteen months later, by reeducation, this man has nearly a normal return of all of the functions of the deltoid, coracobrachialis, biceps, brachialis anticus and triceps; he can extend, supinate and pronate the forearm fairly well, flex the wrist very well, and he flexes the second, third and fourth fingers well, the index finger very slightly, and the thumb not at all. The wrist extensors are but feebly functionating, and those of the thumb and index fingers not at all. Those of the last three fingers show about 75 per cent of function. Sensation has returned save over the radial half of the forearm and hand, or corresponding to the distribution of the muscle spiral, musculocutaneous and radial nerves. The trophic changes in the limb show a marked improvement, save in the thumb and index finger. From an arm that was worthless this man now has a limb which, although it is far from normal, is extremely useful, and which in view of the fact that it frequently takes many months or even years completely to regenerate and reeducate nerves gives promise of still further improvement. Should the function of extension of the wrist not return, we shall ultimately transplant the tendon of the flexor carpi radialis into the common extensor tendons.

Case 2.—A. W., man, aged 42, Dec. 23, 1913, while working in the flour mills, had his right arm caught between a belt and pulley, and he was thrown violently, striking a post with the root of his neck. There was immediate paralysis of his entire right arm and shoulder girdle, together with right sided enophthalmos, pseudoptosis and contracted pupil, indicating involvement of the sympathetic or ciliospinal fibers. The trapezius, levator anguli scapulae and rhomboidei were functionating; the serratus was paralyzed, but the pectorals were feebly acting. Sensation was lost from 3 inches below the axilla.

From these observations we concluded that all the cords of the brachial plexus were involved and that the lesions were high up, as the suprascapular and long thoracic nerves were injured, as were the sympathetic fibers in the eighth cervical and first dorsal roots.

At operation, Feb. 1, 1916, after the splitting of the clavicle, an anatomic dissection of the brachial plexus was made, and revealed that all of the cords were bound down by scar tissue near the middle of the plexus, that the first and second cords just after they emerged from the foramina showed definite neuromatous nodular enlargements, and that the eighth cervical and first dorsal nerves were buckled on themselves and relaxed, although they still were adherent by connective tissue to the foramina.

After all scar tissue about the plexus was dissected off, faradic stimulation of the various cords revealed a slight response from the muscles supplied by the suprascapular and musculocutaneous nerves, slight from the musculospiral and median but none at all from the ulnar nerve. Apparently the roots of the eighth cervical and first dorsal were torn off the cord, while all the other nerves had conduction interfered with by scar tissue either within or without the sheaths. The ulnar nerve was sectioned high, and by the end-to-side method united to a notch in the musculocutaneous, that being the trunk giving the greatest faradic response, and the line of union was wrapped with a free fascial flap. The entire brachial plexus was then covered by a pedicled flap of axillary fat to prevent reformation of scar tissue. Now, four and one-half months later, the trophic improvement in the limb is marked, sensation has returned in the arm and forearm down to within 2 inches of the wrist, and there is also sensation in the thumb.

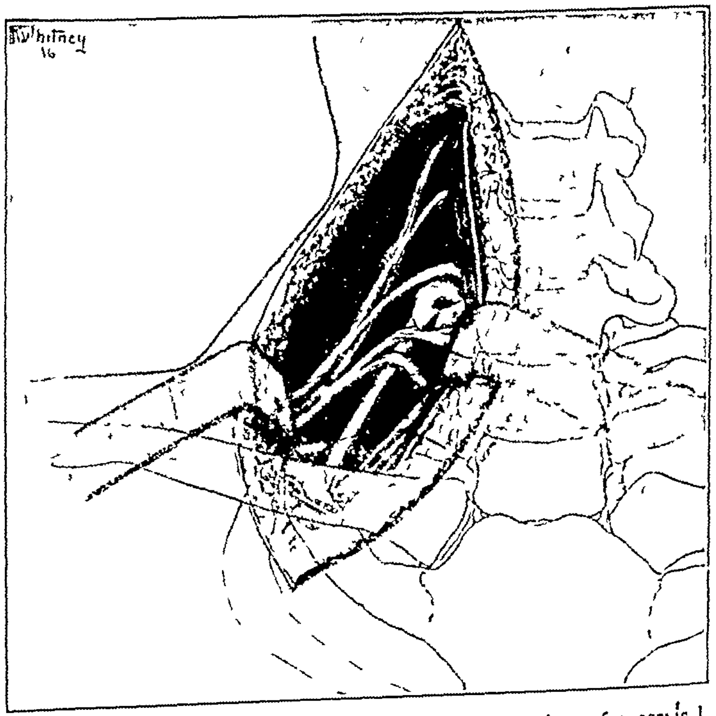

Fig. 5 (Case 3).—Adventitious ligament taking the place of a cervical rib, brachial plexus stretched over it.

There is slight voluntary action of the biceps, triceps and deltoid muscles and there is feeble extension of the wrist This man's injury was so high and so extensive that there is no certainty of great improvement, yet the amount of regeneration to date is significant

CONCLUSIONS

While none of the reported cases of avulsion in the adult in which operation was performed showed complete recovery, still enough function was regained to justify interference Such interference should include nerve transposition when indicated, our warrant being the clinical and experimental evidence, which has proved the certainty of reeducation

420 Syndicate Building

ABSTRACT OF DISCUSSION

Dr Dean D Lewis, Chicago Surgery dealing with injuries of the peripheral nerves has been far from satisfactory If we look over statistics dealing with a large number of cases of peripheral nerve suture we will be surprised to find that only about 36 per cent of them can be regarded as distinct successes It is also surprising to find that secondary nerve suture gives about the same results as primary I believe that failure in peripheral nerve suture is often due to the fear of removing a sufficient length of the nerve to get well beyond the scar tissue, so that healthy axis cylinders are exposed which is essential to success Studies on peripheral nerve regeneration have shown the marked ability of the fibers to regenerate Regeneration of the axis cylinders is preceded by protoplasmic band formation which takes place from both ends of the divided nerves These bands form conducting paths for the developing axis cylinders I believe that fascia is the best material for tubulizing divided nerves In some experimental work which Dr Kirk and I did, we found that fascia is better than blood vessels for this purpose The developing axis cylinders readily invade the serum in such a tube and the use of agar, as recently suggested by Edinger, does not seem necessary An autotransplant gives the best results, as determined by histologic studies, and the method of nerve transference recently suggested by Hofmeister seems to be a distinct advance in this class of work Dr Law is to be congratulated on the results he has had in these two cases because the technic required in dealing with injuries of the brachial plexus is difficult, and consequently the functional results are often disappointing

Dr Arthur A Law, Minneapolis We did some experiments at the University of Minnesota to disprove the theory of positive neurotropism that Forsman brought out It did not seem like good pathology In a series of animals we sectioned the musculospiral nerve and avulsed the distal segments so they could exert no attraction for the proximal segment. We then inserted the proximal nerves into little fascial bags and stitched them there We found that this little fascial sac ultimately was filled with nerve fibers notwithstanding that they lacked the influence of chemotropism of the distal fragments

Longevity and Race—There is reason to believe that certain races live longer than others, and undoubtedly inhabitants of temperate climates live longer than tropical races Humphry pointed out that old age is a product of civilization because the savage when his strength decays cannot live Moreover, civilization provides pensions for those who are too old to work and by the cultivation of the humaner feelings has made the maintenance of the aged a duty which is generally cheerfully performed But the savage is free from most of the diseases which attack civilized man, and consequently that state of society in which there is enough civilization to temper the lot of the aged and not enough to corrupt the young is the most favorable for the attainment of a long life—Saundby

THE INTEREST OF THE COMMUNITY IN CANCER*

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NEW YORK

The interest of the community in cancer can best be characterized, perhaps, by contrasting this disease with another that is still more familiar, namely, tuberculosis The average age at death from tuberculosis is about 37 years, from cancer it is about twenty years greater Tuberculosis affects primarily the economic interest of the community The decedent is usually at the highest point of his efficiency, his productive period is still largely in the future, his children are either very young or still unborn In cancer, on the other hand, the productive period is for the most part in the past, the children have been born, and the family unit is only slightly disturbed economically by the death, since in the majority of cases the offspring have reached the age of self-support and independence It is, therefore, the emotional interest that is uppermost The long suffering patient, and the utter hopelessness of the condition in its advanced stages, appeal tremendously to the humanitarian feeling of the community The economic interest in cancer, although important, must remain secondary

Our interest is accelerated by the mystery that still surrounds the disease The prevalence of cancer has been noted in the earliest history of civilized man Today it is responsible for one death out of every fourteen among men, and for one death out of every nine among women, after the age of 50 Yet, in spite of the wealth of clinical material and the concentration of effort, it has withstood every attempt of the physician and scientist to unravel its secret The world is still baffled as to the cause of cancer Only a beginning has been made in its study, the heart of the problem is still sealed to us The scientific spirit of present-day medicine demands an explanation, and the community as a whole supports this demand insistently and wholeheartedly

Additional interest results from the disquieting fact that the cancer rate may be increasing The chief sources of information on their face indicate an increase This holds true not only for the Registration Area of the United States and for those of our states whose records are most reliable, but also for the United Kingdom, for Switzerland, for Germany and, indeed, generally throughout the civilized world I shall not go into the complex statistical problem involved in determining whether this increase is real or only apparent Equally good authorities have divided on this important question My own judgment is that there may very well be an increase I am struck, however, with the number of possibilities of serious error in using figures which are usually quoted to prove an increase, especially in our own country The figures are too striking to be true In the ten-year period from 1901 to 1910, there was an increase of 30 per cent in the male cancer rate, and of 22 per cent in the female cancer rate, at all ages beginning with the age of 25, in the state included in the Registration Area in 1900 At certain age periods this increase was very considerable —as much as 40 per cent The unreliability of these figures is at once apparent when we think of cancer as a disease of long standing in our civilization By projecting such increases in the rates forward or backward a few generations, we are led at once to an absurdity, for if cancer were capable of increasing at such a pace it would either have been a negligible disease in the recent past or would seriously threaten the very existence of the race in the near future

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* Read before the New York Academy of Medicine in association with the American Society for the Control of Cancer, May 18, 1916

We must consider, in seeking for an explanation of the increasing rates, first, the marked improvement of registration in general in our country during the last fifteen years, and second, the greater certainty in the diagnosis of cancer by physicians, which has resulted from the increase in the number of operations and laboratory examinations We shall have to wait at least ten years under present conditions of registration in our country to know definitely what has happened There are already indications that the cancer rate has reached its highest point, and that in certain communities it is beginning to decline

But whether or not cancer is on the increase is really secondary to the much more important fact that the rate at present is extremely high The condition today is a real menace In order that we may determine the extent of the problem that is before us, it is necessary to refer to a few basic figures The accompanying tables are constructed from the experience of the *Industrial Department of the Metropolitan Life Insurance Company* They are valuable because of their intrinsic accuracy, a quality which most cancer rates, unfortunately, do not possess The figures have also the merit of being based on a large exposure In the Metropolitan experience there are represented over 10,000,000 persons, both white and colored—men, women and children of all ages above 1 The number of persons exposed and the corresponding number of deaths are known with a high degree of accuracy The rates have furthermore the particular value of applying to the working classes of the United States and Canada

TABLE 1—DEATH RATES FROM CANCER (ALL FORMS) PER HUNDRED THOUSAND EXPOSED, CLASSIFIED BY COLOR SEX AND AGE PERIOD*

Age Period	All Persons	White Males	White Females	Colored Males	Colored Females
All ages	69 7	49 9	88 4	30 0	87 5
1 5	4 2	4 1	4 4	2 9	2 9
6 9	1 5	1 6	1 7	0 5	0 5
10 14	1 3	1 5	1 2	0 5	0 9
15 19	2 7	2 6	2 9	1 9	3 1
20-24	4 2	4 6	3 9	1 5	5 3
25 34	15 9	8 2	19 0	8 1	33 6
35-44	77 0	38 1	100 8	27 9	121.8
45 54	198 8	141 0	240 7	92 7	247 9
55 64	381 9	361 4	420 6	174 6	354 6
65-74	603 1	600 6	656 6	213 8	431 0
75 and over	817 5	815 2	862 0	308 0	680 1

* Metropolitan Life Insurance Company—Industrial Department—mortality experience, 1911 1914

The first column in Table 1 shows the death rates from cancer for all persons, without distinction of sex or color The rate at all ages is 69 7 per hundred thousand exposed This rate is based on a total of 23,660 cancer deaths which occurred in the four years 1911 to 1914 In the remaining columns, rates for white and for colored persons of each sex are given

Without devoting attention to the numerous interesting aspects of this table, I may nevertheless point out a few striking derivations First, the cancer rate is much higher among females than among males Second, the rate begins to be significant only with the decade from 25 to 34 Third, the rates are lower for colored than for white persons, however, this applies much more to males than to females At ages 25 to 34 the rate per hundred thousand for white males is 8 2, and thereafter it increases very rapidly, reaching its maximum, 815.2, at ages 75 and over White females have a rate of 19 0 at ages 25 to 34—more than twice as much as the corresponding figure for males As the curve rises there is a tendency for the differences between the sexes to become less, so that in the last age class the rate for white females is 862 0—only a slight percentage in excess of the corresponding figure for males Colored males uniformly show the lowest rates of the four classes In the first significant age class they have a mortality of 8 1 With advancing years the difference in their favor becomes greater, so that in the last age class they exhibit a rate of only 308 0—less than half that of the next higher class Colored females show a very high mortality in the early significant age classes At 25 to 34 they have a rate of 33 6, almost twice that of white females, and more than four times that of white males In the later age classes, however, this disadvantage disappears, so that at ages 75 and over they have a mortality of only 680 1 less than that of both classes of whites

It has often been said that cancer is a disease of the well-to-do If our figures show anything it is that the industrial classes enjoy no advantage The rates which I have just quoted indicate this point clearly on comparison with those for the Registration Area, which embraces all classes of the population The rates for the various age groups of the white male industrial population uniformly exceed by 10 per cent or more the corresponding figures for the population as a whole, the rates for the female industrial population fluctuate about the corresponding figures for the Registration Area, being sometimes a little above and sometimes a little below To be sure, this may be due to the greater accuracy of the insurance data Be that as it may, *we can distinctly state that no large groups in the community enjoy any special immunity* This has been confirmed by an investigation which I have recently conducted into the mortality rates of the principal races of our population I have found that there is little to justify assertions which have been made in the literature that certain of the races enjoy especial or partial immunity The Jews, for example, have been singled out in this respect As a matter of fact, the rate for Jews is sometimes higher than for the native-born Americans of the corresponding age periods In 1910, for example, there was a cancer mortality of 150 0 per hundred thousand at ages 45 to 64, among the native American male population of New York State On the other hand, the Russian-born male population—an overwhelming majority of which are Jews—had a rate of 277 5 in the same age class

In Table 2, I have attempted to indicate the relative importance of the several forms of cancer which occur among males and females of the two races It will be noted that among white males about half of the cancers affect the stomach or liver About 20 per cent more relate to other parts of the digestive system, namely, the buccal cavity, the peritoneum, the intestines or the rectum Together over 70 per cent of the cancers among males are so accounted for Among females, cancer of the genital organs and cancer of the breast are very prominent The former was responsible for 43 1 per cent of all the cancer deaths occurring among the colored, 15 9 per cent in addition were due to breast cancers Cancers of the skin are much more numerous among males than among females, the rate is extremely low for colored persons, being virtually negligible among colored females

TABLE 2—DEATHS FROM CANCER OF SPECIFIED ORGANS PER HUNDRED DEATHS FROM CANCER OF ALL FORMS CLASSIFIED BY COLOR AND SEX *

Cancer of Specified Organs	All Persons	White Males	White Females	Colored Males	Colored Females
Cancer all forms	100 0	100 0	100 0	100 0	100 0
Cancer of buccal cavity	3 7	9 6	1 1	7 3	1 5
Cancer of stomach and liver	37 8	49 6	33 9	53 5	21 5
Cancer of the peritoneum intestines and rectum	11 7	13 0	11 6	10 2	8 3
Cancer of the female genital organs	21 1		28 8		43 1
Cancer of the breast	9 3	0 3	12 9	1 0	15 9
Cancer of the skin	2 6	4 5	1 9	3 2	0 9
Cancer of other organs or of organs not specified	13 9	23 0	9 8	24 9	8 8

* Metropolitan Life Insurance Company—Industrial Department—mortality experience 1911 1914

In general, there is clearly a larger proportion of surgically accessible cases among females than among males Hospital statistics show that the cancers which are responsible for a large part of the female mortality—those of the genital organs and of the breast—are most susceptible to treatment At Johns Hopkins Hospital, 11 1 per cent of the operations for cancers of the female genital organs proved fatal, and only 5 5 per cent of the cancers of the breast We may, therefore, expect a large reduction in the female cancer mortality from organized efforts to bring cases to early treatment

The third table presents the average ages at death of the persons who have died of cancer of the various forms It is evident that the average age of females at death from cancer of all forms is about two and one-half years lower than that of males 54 8 years as against 57 2 years Among males the average age at death from the different causes varies between 53 7 (for cancer of other organs) and 61 8 (for cancer of the breast and cancer of the skin) Among females the variation is within wider limits, the minimum age at death being 51 1 (for cancer of the female genital organs) and the maximum being 63 7 (for cancer of the skin) The age at death for cancer of the buccal cavity, cancer of the breast and cancer of other organs is higher among males than among females There are slight differences in favor of the females, on the other hand, in connection with cancer of the stomach and liver, cancer of the *peritoneum, intestines*, and rectum, and cancer of the skin

TABLE 3—AVERAGE AGE AT DEATH FROM CANCER OF SPECIFIED ORGANS CLASSIFIED BY SEX *

Cancer of Specified Organs	Average Ages of		
	All Persons	Males	Females
Cancer all forms	55 5	57 2	54 8
Cancer of the buccal cavity	58 9	59 4	57 3
Cancer of the stomach and liver	58 3	58 3	58 4
Cancer of the peritoneum intestines and rectum	56 1	55 8	56 3
Cancer of the female genital organs	51 1		51 1
Cancer of the breast	53 9	61 8	53 8
Cancer of the skin	62 7	61 8	63 7
Cancer of other organs or of organs not specified	52 9	53 7	52 1

Metropolitan Life Insurance Company—Industrial Department—mortality experience 1911 1914

A consideration of the average ages at death is important, because they indicate the loss to the community that is occasioned by cancer deaths At 55 the expectation of life at the present time in New York City is over fourteen years, at 60 it is almost twelve years If, for the sake of argument, we assume an average loss to the community of fifteen years of life for each cancer death, it will at once be seen how huge is the loss to the community as a whole At the present time a conservative estimate places the total number of cancer deaths in the United States at 80,000 a year This means a loss to the community of an aggregate of 1,200,000 years of life It is futile to consider the monetary value of this loss, as I have already pointed out, the interest of the community in this disease is not primarily economic Our great desire is to allay the suffering of the many thousands of persons who annually succumb, and, if possible, to extend to persons of middle life and early old age a few additional years of peaceful enjoyment This will be a gain to civilization of no mean value We shall have accomplished much if we assure those who are just entering the portals of old age that the declining years of their life will not be beset by the gaunt specter of cancer That the happiness of thousands of families will be preserved, and that thousands of individuals will be spared unbearable pain, surely means more to the community than can be estimated in terms of dollars and cents

To accomplish this end, two lines of effort are clearly indicated The first is immediate and undeniable It is to reduce, by the best means at our disposal, the suffering and premature death of cancer patients At the present time the greatest promise of success is held out by the surgeon The average duration of the disease, from the first symptom to death, varies considerably with the form and location of the cancer, but, taken together for all forms of cancer, the period is about two years The records of surgical interference, especially those of the Mayo Clinic, indicate a marked extension of life of the patients after operation While no absolute figure may be quoted, there is an indication that an expansion of life of about three to five years is accomplished for about half of the cases The extent of the additional years depends on the timeliness of the operation, the failures being the advanced cases If, therefore, it can be arranged that early diagnosis be followed by immediate operation, the average duration of life of cancer patients can be appreciably prolonged If an average of five years could be added to these lives, this would be equivalent to a reduction of more than one third of the total loss This is clearly the community's immediate program

The second line of effort lies in investigating into the basic facts of cancer—the etiology of the disease, its method of dissemination, the problem of inheritance, and, finally, the measures of relief This is the field of the pathologist and the surgeon, rather than of the statistician, the sociologist, or the lay investigator I wish to devote brief attention, however, to a contribution to this effort which is being made by the life insurance companies, and which promises to cast valuable light on the entire problem

At the request of the American Society for the Control of Cancer, a committee[1] representing the largest life insurance companies has made all the necessary preparations to carry on a special study of the life insurance returns for two forms of cancer which are readily diagnosed, namely, cancer of the buccal cavity and cancer of the breast Special forms have been drawn up for this purpose, covering the following points

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[1] Mr Arthur Hunter New York Life chairman Dr F C Wells, Equitable Life Dr W A Jaquith Prudential Dr Brandreth Symonds Mutual Life and Louis I Dublin Metropolitan Life

INQUIRY BLANK FOR THE STUDY OF CANCER OF THE BREAST (OR OF THE BUCCAL CAVITY)

Name of patient, address, department, claim number

Personal and social facts about deceased color, sex, nearest age at death, place of birth, birthplace of deceased's mother (if readily ascertainable) Was deceased single, married, widowed or divorced?

Occupation general nature of industry or business, trade or particular kind of work

Family history of deceased Have other members of deceased's immediate family died from cancer of the breast (or buccal cancer)? Have other members of deceased's immediate family died from other forms of cancer? Have other members of deceased's immediate family had and survived any form of cancer? If so, state relationship, also give type of cancer

History of breast lesions Any history of blow, wound, irritation or other injury to breast? Please specify Type of mammary gland (large, small, adipose?) Lactation *first and last date of lactation if possible* Any difficulty with lactation? *Any history of mastitis?* Habits Was deceased a vegetarian? A heavy meat eater?

History of buccal lesions Any history of irritation from teeth? Any history of other irritation or injury to buccal cavity? Any history of syphilis? Leukoplakia? Habits Did deceased use alcoholic beverages? Abstainer? Moderate user? Excessive user? Did deceased use tobacco? Pipe? Cigar? Cigaret? Chew? Was deceased a vegetarian? A heavy meat eater?

Cancer history Date when first symptoms were observed Type of tumor when first observed Location of initial tumor Metastasis to —

Type of tumor at time of death Location of tumor at time of death

Cancer treatment Give approximate dates, kind of treatment and results (*a*) medical treatment, (*b*) surgical treatment, (*c*) other treatment (Roentgen *ray, radium or other*)

Other diseases or conditions intercurrent with cancer

Pathologic report Gross appearance of tumor (if of the breast, was the skin or muscle, or both involved?) Microscopic report (if of the breast, give details of structure of growth)

Necropsy report Please give findings

Any other information of value

Date, and signature of physician

The plan is to send one of these blanks to each of the physicians who sign the death certificates on the claim papers returned to the life insurance companies, and to ask for more information with reference to the case By these means the companies hope to obtain all the important facts with reference to the history of the deceased and of his or her family The history of the lesion is gone into fully, to determine whether there has been any blow, wound or irritation, the cancer history is listed, as well as the nature of the treatment Record of necropsy or of pathologist's report is called for We hope to receive this information in a large proportion of cases, and at the end of a requisite period the entire material will be analyzed as a unit and a report will be issued Thus we trust that we shall be able to add materially to the amount of exact knowledge with reference to cancer

The insurance companies, as well as the American Society for the Control of Cancer, hope and trust that these forms will receive the careful attention of specialists and general practitioners, and the enthusiastic cooperation of the medical profession is confidently counted on as one of the essential instruments in this investigation

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The Child a Barometer of Its Health—Just as hot house plants are exceedingly sensitive to their surroundings and only thrive when placed the most favorable surroundings as regards light, warmth and soil, and quickly show by drooping, the slightest departure from favorable conditions, so do infants respond favorably or unfavorably to feeding, housing and general environment, according as these are good or bad—Ashby

HEMOGLOBINURIC FEVER

TREATED BY INFUSIONS CONTAINING QUININ

WILLIAM O OTT, M D
NEW ORLEANS

A white man, aged 35, telegraph operator, was admitted to the medical service of Dr J M Elliott in the Charity Hospital, Dec 13, 1915, with hemoglobinuric fever The patient had lived in a malarial district for the past six months, since September, 1915, at Angola, La, and before that time, near Jackson, Miss Both places are in malarial districts The patient had several attacks of malaria the preceding August while living near Jackson, and had had chills with fever every ten or fifteen days since moving to Angola For the past two months the patient had been somewhat jaundiced and very much run down He had taken quinin irregularly since summer, and large amounts of it at times

The present illness began Sunday, Dec 12, 1915 The patient was feeling bad when he returned from work Sunday morning (night operator), and he took several capsules of quinin at about 8 a m He was up most of that day, but felt feverish in the afternoon At about 4 p m he had a severe chill with high fever He began to vomit and pass bloody urine shortly after the chill He was very restless that night, with frequent vomiting and a distressing hiccup The fever remained high all that night, and he had another severe chill in the early part of the night Monday morning it was noticed that he had become deeply jaundiced The temperature was 104 at this time, and he continued to pass almost black urine in small amounts The vomiting, hiccup and high temperature, with the extreme restlessness, continued all that day At 7 30 p m he was admitted to the Charity Hospital with a temperature of 103 He was evidently a very sick man He was restless and vomited a yellowish fluid at short intervals The urine was dark red, almost coffee colored, and was passed in small amounts He complained of tenderness and pain in the epigastric region from the prolonged vomiting The patient was well developed and well nourished and deeply jaundiced, with the sclera lemon yellow The mucous membranes were pale The spleen was soft, tender to pressure, and reached 3 inches below the costal margin The liver was not palpable There was tenderness over the entire upper abdomen Otherwise, the physical examination was negative

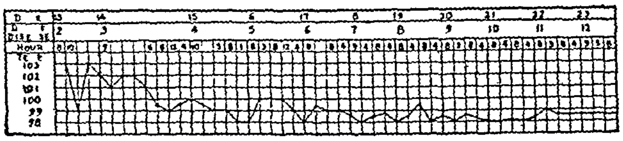
At 9 30 and 11 30 p m, 10 grains of quinin *sulphate* were given by mouth This was not retained and it was discontinued An opiate was given at 12 30 a m for the extreme restlessness The patient vomited several times during the remainder of the night, but slept at intervals In the forenoon of December 14, the condition became much worse Vomiting was almost continuous and the restlessness extreme There was no absorption from proctoclysis A small amount of almost black urine was passed during the forenoon The prostration of the patient increased, and death seemed imminent It was decided to give quinin, and at 11 30 10 grains of quinin dihydrochlorid in 300 c c of saline solution were given intravenously The condition of the patient seemed better shortly after the infusion In the afternoon the restlessness and vomiting decreased, and the patient was much more comfortable, and was voiding more freely The saline infusion containing 10 grains of quinin *dihydrochlorid* was repeated at 4 30 and 10 30 p m By 6 p m the temperature had dropped to 99, and the appearance of the patient was greatly improved The night of December 14 was passed fairly comfortably, although no liquids were retained and an opiate was required for restlessness December 15, the quinin infusion was given at 11 a m and 4 p m The patient was much improved, and there was absorption from proctoclysis on this date Liquids were not retained by mouth The jaundice was not so intense There was free secretion of urine, and it was of a light wine color At 2 p m, December 16, one quinin infusion was given The patient retained liquids Urine secretion was free and lighter in color December 17, the urine was entirely clear, the jaundice had almost disappeared, and the spleen reached 1½ inches below the costal margin, and was firm Quinin sulphate, 10 grains, three times a day, was taken by mouth on this date and retained This was repeated daily until the patient was discharged

The urine and blood findings are those characteristic of hemoglobinuric fever The first urine on admittance was dark red, almost black, and contained albumin, hyaline and granular casts, no red blood cells, but hemoglobin, and a large amount of a dirty, brownish granular detritus By December 18 the urine was clear of albumin, casts and hemoglobin No plasmodia were found in the blood on admittance, or subsequently December 21, the blood examination showed total whites, 6,050, total reds, 2,800,000, lymphocytes, 47 per cent, large mononuclears, 1 per cent, transitionals, 4 per cent, neutrophilic leukocytes, 46 per cent, myelocytes, 2 per cent, and hemoglobin, 55 per cent

In answer to a letter two months after discharge, the patient stated that his improvement was uninterrupted after his return home, and that he felt better now than at any time in the last five years He had been free from attacks of malaria, and had gained weight rapidly

COMMENT

The question as to whether the marked improvement after the infusion was due simply to supplying fluids to the body, or to the quinin contained in it, presents itself Recently, Bruce-Porter[1] observed marked improvement with repeated saline infusions containing no quinin Burkett[2] used Roger's hypertonic solution, and he believes that the improvement noted in a case so treated was due to overcoming acidosis In our case, the rapid fall in temperature with only a slight subsequent rise, and the rapid amelioration of the vomiting, singultus and abdominal distress after the infusion, makes one feel that the improvement which followed was dependent, to some extent at least, on the quinin Certainly no ill effects resulted from its administration On the contrary, there was a rapid drop in temperature after the intravenous quinin, and a great improvement in the patient's condition The improvement continued uninterruptedly until he was discharged from the hospital



Temperature chart.

The treatment of hemoglobinuric fever with large doses of quinin is not the generally accepted one at present The physicians of the Isthmian Canal Commission, notably Brem,[3] and Deeks and James,[4] advise against its use during an attack of hemoglobinuria The latter authors, however, recommend its cautious use if parasites are present Stephens[5] advises withholding quinin during the attacks of hemoglobinuria, unless parasites are present in such numbers that the symptoms can in part be attributed to them

The exact cause of hemoglobinuric fever is unknown, and for this reason the rationality of any treatment of this condition must still remain in doubt in spite of the large advance that has recently been made in the study of this disease The association of blackwater fever with malaria has long been known, and strong evidence is at hand pointing to its malarial origin Stephens,[6] in collecting reports of a series of cases, gives the percentage of positive blood examinations the day before onset, the day of the onset and the day after the onset of blackwater, as 73, 47 5 and 23, respectively This confirms the observation first made by Panse,[7] that the parasites disappear from the peripheral circulation with the outset of hemoglobinuria Ross, Thompson and Simpson,[8] in explaining Panse's law, suggest that in blackwater fever the old worn out red cells are hemolyzed, and new ones containing no plasmodia rapidly take their place The asexual plasmodia, being unable to live free in the plasma, are destroyed In this way, a large percentage of the asexual parasites are destroyed This explains why many patients are relieved of their malaria for months by an attack of hemoglobinuric fever It is believed by some that hemoglobinuric fever is a self-limited disease, and that the hemolysis, with its consequent hemoglobinuria, is an expression of nature to rid the body of the infection The severe symptoms present are thought to be the result, in part at least, of setting free this large amount of hemoglobin in the plasma This belief is supported by observations of Barratt and Yorke[9] and of Yorke and Nauss,[10] who produced severe symptoms, anuria, and even death in animals, by injecting a hemoglobin solution

Without entering into a discussion of the cause of the very remarkable hemolysis that takes place in this condition, for the whole subject is still in obscurity, certain facts that bear on the treatment stand out In the first place the sequence of the administration of quinin, and the onset of hemoglobinuria several hours afterward, is a well established fact On the other hand, there are many cases on record in which quinin as a causative factor in initiating the onset can be eliminated Quinin is also thought to increase the hemolysis, and consequently the severity of the symptoms in some cases, when given during an attack Barratt and Yorke,[9] who conducted experiments to determine the hemolytic action of quinin, conclude that quinin has no more hemolytic action on the red cells of hemoglobinuric fever patients than on those of normal persons They also conclude that it does not act directly in the circulation, for to do this would require a fatal dose Ross, Thompson and Simpson[8] observed a case in which the fall in hemoglobin began forty-eight hours before the onset of hemoglobinuria and twenty-four hours before the paroxysms of chill and fever The presence of malarial plasmodia is a fairly constant finding at the beginning of the attack, the blood being positive in 73 per cent of the cases the day before the onset of the blackwater If the fall in hemoglobin content of the blood occurs forty-eight hours before the onset of symptoms, as it did in the case cited above, plasmodia are present in something over 73 per cent of the cases at the onset of the hemolysis This is certainly presumptive evidence, at least, of the malarial plasmodia as a causative factor, and would seem to justify the use of quinin The question of the possibility of doing harm to the patient with this drug must, of course, be borne in mind

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[1] Bruce Porter Intravenous Injections in Blackwater Fever Practitioner London 1914 xcii 261

[2] Burkett R W P Blackwater Fever Lancet London Nov 20 1915 p 1138

[3] Brem Walter Studies of Malaria in Panama II Treatment of Blackwater Fever Pernicious Malaria with Hemoglobinuria and Erythrolytic Hemoglobinuria Arch Int Med February 1911 vii p 153

[4] Deeks W E and James W M A Report on Hemoglobinuric Fever in the Canal Zone A Study of Its Etiology and Treatment 1911 Mount Hope C Z p 177

[5] Stephens J W W Modern Medicine Osler and McCrae ii 115

[6] Stephens J W W Blackwater Fever Proc XVII Internat Cong Med London 1913 Section XXI Tropical Medicine and Hygiene Part II p 217

[7] Panse O Schwarzwasserfieber Ztschr Hyg Inf 1902 xii 1

[8] Ross, R Thompson D and Simpson, G C E Ann Trop Med and Parasitol 1910 iv 307

[9] Barratt and Yorke An Investigation into the Mechanism of Production of Blackwater Ann Trop Med and Parasitol 1909, iii, 1

[10] Yorke, W, and Nauss R W The Mechanism of the Production of Suppression of Urine in Blackwater Fever Ann Trop Med and Parasitol 1911 v 287

Quinin is best given in an infusion, since it is not retained by mouth Besides this, the infusion is not an unimportant part of the treatment, for the demand for fluids is urgent Yorke and Nauss[10] observed that anuria and death were less likely to supervene in rabbits injected with a hemoglobin solution if the rabbit had been previously supplied with fluids, than if it had been deprived of fluids Hemoglobinuric fever patients usually vomit all fluids, and proctoclysis will often not be absorbed From 300 to 500 c c of saline solution in which not more than from 5 to 10 grains of quinin dihydrochlorid have been dissolved may be given and repeated every six to eight hours so that the patient gets from 15 to 30 grains of quinin in twenty-four hours

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Don'ts to Be Observed in the Management of Hypertensive Cardiovascular Disease—1 Don't tell the patient with moderate hypertension, few symptoms and whose kidneys are functioning well to stop eating meat, or go on a milk diet

2 Don't tell him to immediately give up his business, try to readjust his life so that unnecessary cardiovascular strain is reduced to a minimum

3 Don't tell him his kidneys are "all right," just because his urine exhibits neither albumin nor casts

4 Don't miss the significance of nocturnal polyuria and a persistently low gravity

5 Don't give nitroglycerin tablets to your patient the moment you discover that he has hypertension Perhaps he requires a high pressure to get the blood through his small inelastic vessels

6 Don't be satisfied with the systolic pressure—the diastolic is often of more significance

7 Don't attribute the insomnia, nervousness and headaches in the middle aged woman to "the change"—take her blood pressure and examine her eye grounds

8 Don't make a diagnosis of neurasthenia till after a blood pressure estimation and a Wassermann test It may save subsequent embarrassment and even be of advantage to the patient

9 Don't think you are doing your whole duty to your pregnant patient when you have examined her urine She may have hypertension but no albumin today and eclampsia next week

10 Don't consider hypertension solely a condition of middle life, it is occasionally present in childhood

11 Don't forget the old man's enlarged prostate It may be the cause of the nephritic syndrome

12 Don't hesitate to give digitalis when symptoms of cardiac failure are evident It will not raise the blood pressure

13 Don't wait until the patient is water logged and the heart dilated before suspecting a failing myocardium

14 Don't deny your sleepless gasping patient, whose course is nearly run, the relief that only morphin will give

15 Don't make a prognosis solely on the blood pressure or phenolsulphonephthalein test Each tells but part of the story

16 Don't overlook the fact that cardiovascular disease is to a certain degree a familial condition sometimes present in several generations, nor neglect to explain the importance of a yearly blood pressure estimation of all members of the family

17 Don't exclude syphilis, especially a parental infection, as the cause of the hypertension solely because the Wassermann is negative Study the family history, examine the brothers and sisters, and your patient's children for signs of hereditary syphilis

18 Don't fancy that the management of hypertension consists in watching a column of mercury or that success is measured in millimeters—Henry Farnum Stoll, M D, Hartford, Cc

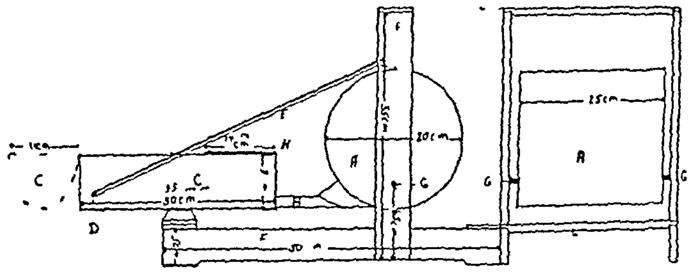
New Instruments and Suggestions

A PORTABLE SHELLACKING DEVICE FOR KYMOGRAPH RECORDS*

R G Hoskins, Ph D, Chicago

A shellacking device should have the following characteristics It should be compact, should contain a fairly large quantity of the fluid adequately protected from evaporation, and should be as nearly as possible automatic in action The use of rubber tubing should be avoided With these requirements in mind, the apparatus herein described has been devised Several months' use has proved its practicability

It consists essentially of a cylindric reservoir, *A*, with an outflow, *B*, leading to an open trough, *C*, in which the records are dipped The height of the fluid in the trough is determined by the position of the mouth, *D*, of the vent tube, *E* The reservoir is mounted eccentrically in a wooden supporting frame, *F F*, by the pinions, *G G* The purpose of this mounting is to make the apparatus stable either in the horizontal position, as shown, or with the trough elevated When so elevated by rotation on the pinions, the fluid flows into the reservoir The proximal part of the trough is covered by the lid, *H*, soldered on to form a receptacle for the fluid, when the apparatus is first moved into the elevated position From this receptacle it drains quickly back into the reservoir while an equal quantity of air is displaced through the vent, *E* (For wide records the larger dimensions of *C* should be used) The reservoir trough and outlet tube, *A*, *B* and *C*, are made of galvanized iron The vent tube is of brass, 1 cm outside diameter When the apparatus is not to be used for some time, the opening of the outlet tube is closed by a cork stopper mounted on a wire handle



Lateral projection of portable shellacking device for kymograph records

The formula for the fixing fluid used in this laboratory is

Gum dammar	300 gm
Benzol (benzene, C_6H_6)	2,000 c c

This gives a hard elastic semigloss finish It is said that a similar result may be obtained by diluting ordinary "hard oil finish" with benzene

A SEPTAL SPLINT†

Clifford B Walker, M D, Boston

Cotton or gauze plugs wrapped with Cargile membrane make a very satisfactory nasal packing as regards hemostasis, easy withdrawal and prevention of adhesions It is very uncomfortable for the patient, however, in that it occludes the breathing space and distends the nose painfully Further, it is almost impossible to pack the septum truly in the midline A proper septal splint, therefore, would be desirable

The vertical opening of the lower nares is only about one third of the vertical extent of the septum, yet septal splints have always been limited to the size of the lower nares Experimenting with a variety of expanding splints, I have found wire unsatisfactory in that it readily embeds in the soft tissue and allows an edematous or hematomatous ballooning between wires, making removal difficult unless they are straight like the ribs of a fan, without loops or meshes The same thing occurs with blades having large perforations Devices having the two members on a fixed spring are difficult to place and move and difficult to withdraw, because of the enlarged external portion of the septum Finally, a splint satisfying our demands was made as described below

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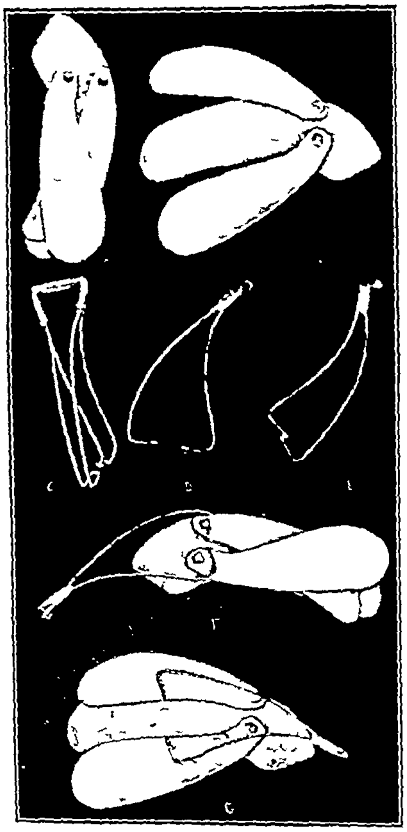
* From the Laboratory of Physiology of the Northwestern University Medical School

† From the Peter Bent Brigham Hospital



Septal splint *A* aluminum wings collapsed *B* wings widely opened to show shape *C* retaining springs locked *D* one member of springs open *E* spring closed to pass through lower nares *F* position for combination insertion *G* approximate final position in nose

After a study of the size and shape of the area to be splinted in the average nose of a sagittally sectioned cadaver head, a splint blade having three wings and shaped as at *B* in the accompanying illustration was cut from 0 5 mm aluminum sheeting and pivoted together with single flat rivets When these wings are collapsed (as at *A*), they readily enter the lower nares, the wings shifting somewhat in accommodation to the constricting point in transit After passing into the nose, the anterior member may be held either with a forceps or with a thread passed through a small perforation (as in the illustration), while the wings are moved by use of a probe or forceps into position to cover the entire septum The wings of the splint being very light, adhere sufficiently to the moist membranes while the adjustment of the retaining springs is accomplished

The retaining springs (*C*, *D*, and *E*), act in two ways first to spread the wings gently to the extent of the septum, and second to press them lightly against the septum when the lower or external portions are united This union is made up of a male and female sliding lock acting at right angles to the spring By this device the springs may be made to press together with any desired pressure and the pressure thus developed automatically locks the parts in position

The distal ends of the springs are bent so that their pressure will be distributed from about the center of the upper and the lower wings and they are provided with claws to engage the margin of the wings, which are slightly everted to receive them At the same time the claws may slide along these margins (*G*) so that the external portion may fit snugly and neatly into the angle between the upper lip and the external portion of the septum These claws are also used to assist in placing the springs in position, since they are so designed that they can be caught in each other, as shown at *E* Then the spring is reduced to a size which will readily pass through the lower nares When in the proper position between the upper and lower blades, a slight push on the upper distal portion of the spring will release the claws, and they will immediately engage on the ridges of the wings, if at the same time the claws are pressed against the middle plate If by chance either claw fails to engage, it is easily pushed into position with the forceps

It is not necessary, however, to put the spring on as a second step Indeed, it has usually been found easier first to attach the spring near the rivets, as shown at *F*, and then, after the blades have been passed into the nose, the spring is pushed in a sufficient distance and locked with its fellow.

If turbinates have been cut at the operation sufficiently to demand packing, Cargile membrane may be easily placed properly in the nose, since the splint occupies a negligible amount of space Thus the septum may be kept symmetrically centered, whether or not packing is used The splint is very easily removed, disclosing a beautifully smooth unruffled septum The splint may be removed in from twelve to thirty-six hours, but it can be left in for three days, or after removal it may be reapplied the next day if from trauma or other cause the septum should bleed or become distorted The instrument, finished much better than the original model here shown, may be obtained from E B Meyrowitz, New York

697 Huntington Avenue

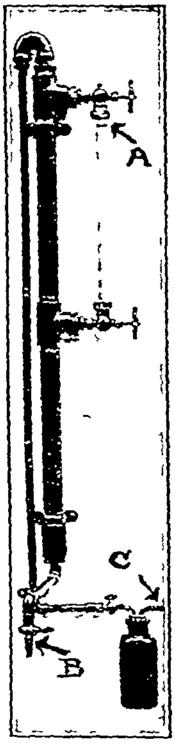
AN ASPIRATING APPARATUS FOR OFFICE AND HOSPITAL USE IN OBTAINING GASTRIC CONTENTS

Philip Atlee Sheaff, M D, Philadelphia

The device shown in the illustration may be assembled at small cost by any plumber, it is an improvement over the usual method of obtaining gastric contents by the use of the bulb or Politzer bag The large vertical portion is composed of 1¼ inch pipe and fittings and measures 38 inches over all, with a half-inch water gage attached to its upper half Both extremities terminate in quarter-inch pipe, one end being connected by rubber tubing to an aspirating bottle, and the other end equipped with a cock and discharging into the wash stand basin, being a permanent fixture in proximity to it

Before use, the standpipe is filled with water to the level of *A* by connecting *B* and the wash stand faucet with a piece of rubber tubing When in use the stomach tube is slipped over the glass tubing at *C*, its free end passed into the patient's stomach, cock *B* is opened the column of water descends and the gastric contents flow into the bottle

4005 Baring Street



Apparatus for aspirating gastric contents

A SUGGESTION FOR THE DIAGNOSIS OF HAY-FEVER

A Parker Hitchens, M D,
Glenolden, Pa

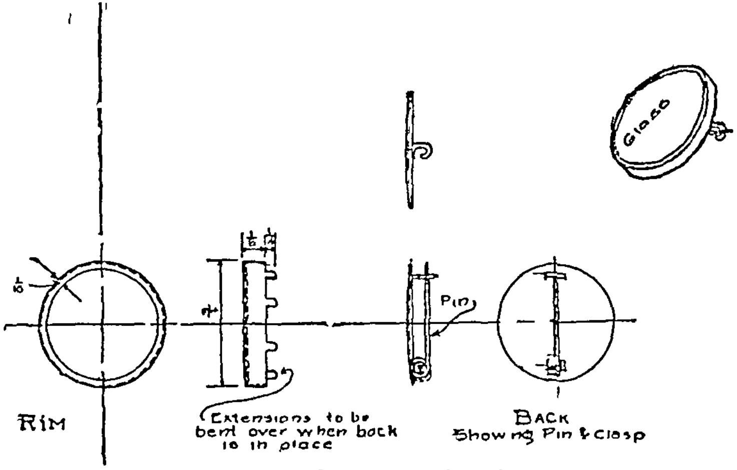
Diagnosis in hay-fever is in some ways more difficult than diagnosis in the case of bacterial infections Indeed, if we include all the conditions concerned in periodic attacks of sneezing and periodic conjunctivitis, identification of the causative agent may be much more difficult, for plant pollens are not by any means the only source of protein substances in the atmosphere to which certain individuals may be hypersusceptible

We are not yet acquainted with the complete catalogue of pollens concerned in hay-fever Of the very common causes, the list is probably small, in fact we shall relieve a very great majority of our patients if we can render them insusceptible to a few of the grass pollens in the spring, and in the fall, if we eliminate ragweed, the number of persons with a severe type of the disease will be small

In undertaking a rational therapy, specificity is at present believed to be a matter of great importance Goodale[1] has been especially interested in determining whether or not a person susceptible to the pollen of one member of a genus or even of a natural order, might be susceptible to all the other members of the group, and furthermore, how far specificity is requisite with regard to treatment

Whatever may be the limits of specificity, the fact that an individual suffering from the spring type of hay-fever may not be affected at all in the fall, and vice versa, suggests that the successful vaccine should contain an extract of pollen homologous at least with regard to the natural order, if not indeed to genus and species It is important, therefore, to ascertain which pollens are inhaled by the patient during his hay-fever season

Ophthalmic reactions have been suggested as one means of making such a diagnosis This method, however, is not unattended by danger Cutaneous reactions are equally trustworthy, and have the advantage of being entirely harmless According to this system, a patient not entirely relieved by a vaccine containing the ordinary pollens of the season may be safely tested successively with a long list of extracts, those to which he reacts being noted and included in his vaccine As suggested in the paper by Dr Brown and myself,[2] a botanical survey of the patient's surroundings, especially of the neighborhood where his most violent symptoms occur, may reduce the pollens probably responsible to a very small number



Details of button or brooch

In collecting the pollen, the glycerin coated slides used by Phoebus,[3] Blackley,[4] Dunbar and others have suggested a little device which may be of practical assistance in ascertaining the varieties of pollen with which the patient comes in contact This device is in the form of a button or brooch consisting of a circular metal frame with prongs attached at the back edge An ordinary round coverslip is placed in the frame, then a pad of some kind to prevent fracture, and finally the solid metal back with the pin attached, which is held in place by the prongs mentioned above After the coverslip is coated with the glycerin mixture suggested by Blackley,[6] the brooch may be worn on the coat or waist for a certain number of hours and then sent to the laboratory, where the coverglass is removed, mounted and examined under the microscope

If the patient notes that in a certain locality his symptoms become especially severe, the brooch may be removed and left in a properly protected place for a sufficient period to collect the pollens in that particular neighborhood

Therapeutics

HYPERTENSION

(Continued from page 811)

DRUGS IN HYPERTENSION

The drugs that are mostly used to lower blood pressure are nitrites or drugs which are like nitrites, and these are nitroglycerin, sodium nitrite, erythroltetranitrate and amyl nitrite, and the frequency of their use is in the order named Other drugs used to lower blood pressure are iodids, thyroid, alkalies, chloral, bromids and aconite, the latter rarely

Amyl nitrite is required only when a sudden immediate effect is desired in angina pectoris or in some other serious spasmodic condition Sodium nitrite is more likely to upset the stomach than is nitroglycerin It acts, however, a little longer, but not enough to warrant its frequent selection The dose of sodium nitrite is from 0 03 to 0 06 gm (½ grain to a grain), best in tablet form and given with plenty of water The tablet should of course be dissolved or crushed with the teeth It should not be given on an empty stomach, as it may cause considerable irritation and pain It more or less actively lowers the blood pressure for about an hour

Erythrol tetranitrate is preferred by some clinicians who find that its effect lasts somewhat longer There is probably, however, no better nitrite or nitrate than nitroglycerin While it acts but a short time, it acts effectively, and although no nitrite has vasodilating effects for any length of time from one dose, when the doses are given repeatedly and for days at a time, the blood pressure will generally be more or less reduced The dose is from 1/500 to 1/100 grain, three or four times a day, or every three hours, as desired The best form in which to use it is in a very soluble tablet, and the tablet should not be dissolved unless intense immediate action is desired It acts when absorbed from the tongue almost as rapidly as when given hypodermically, it acts in two or three minutes, and the blood pressure may drop from 20 to 30 mm In experimental tests the action does not last more than from fifteen minutes to half an hour, but clinically the effect of repeated doses is much more satisfactory Spirit of glyceryl trinitrate or spirit of nitroglycerin, dose 1 minim, keeps well if care is taken to guard against evaporation of alcohol, tablets if well made and kept in bottles properly corked, will retain their activity for months

The closer a physician is to the laboratory, the less he believes in the value of nitroglycerin in hypertension The nearer he is to clinical work the more he believes in it It is a fact that in some instances, even with a dose as small as 1/200 grain of nitroglycerin, three or four times in twenty-four hours, the blood pressure will be lower, whatever the diet is and whatever the other treatments are, than if the patient does not take the nitroglycerin Also the value of these short relaxation periods from the standpoint of a strained and tired heart should not be underestimated, the same as the value of a night's rest, or the value of a recreation period of an hour or two If a patient has hypotension and a systolic pressure of 110, and is given nitroglycerin, the very unpleasant results from its administration will be immediately noticed Hence nitroglycerin is one of the most valuable drugs that we possess for the treatment of hypertension, and some patients are even benefited by as small a dose as 1/500

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[1] Goodale Pollen Therapy in Hay Fever, Boston Med and Surg Jour, 1915, clxxiii, 42

[2] Hitchens and Brown Hay Fever and Certain Other Local Anaphylactic Phenomena Referable to the Respiratory Mucous Membranes, Jour Lab and Clin Med, 1916, 1, No 7, p 457

[3] Phoebus Der typhische Fruhsommer Katarrh oder das sogennante Heufieber Heuasthma, Giessen Ricker, 1862 p 136

[4] Blackley Catarrhus Aestivus, London, Bailliere, Tindell and Cox, 1873, p 75

[5] Dunbar The Present State of Our Knowledge of Hay Fever, Jour Hyg, 1913, xiii, 105

[6] Blackley's Mixture consists of

Water	1 part
Alcohol	2 parts
Glycerin	1 part
Phenol (carbolic acid)	1 per cent

gram Lawrence[63] found that the fall of diastolic pressure from nitrites was about half of the fall of systolic pressure When there is no kidney lesion a very high systolic pressure falls more under nitroglycerin than does a medium high systolic pressure

Alkalies, whether potassium or sodium citrate or sodium bicarbonate, are often of advantage in so changing and aiding metabolism, or perhaps reducing the irritation from hyperacidity or a mild condition of acidosis, that their administration causes a lowering of blood pressure

While iodids may not be direct vasodilators and do not render the blood more aplastic or diminish its viscosity, as shown by Capps,[64] still, iodids in small doses, 0 1 to 0 2 gm (1½ to 3 grains) given from once to three times a day, after meals (these small doses do not disturb the stomach), will stimulate the thyroid gland to greater activity, and when this gland secretes properly, the blood pressure is somewhat lowered Of course, in syphilitic sclerosis large doses of iodids are indicated and are valuable

In obese patients with hypertension, in the hypertension of women at the menopause, and in hypertension with insufficient kidneys, thyroid medication is often of great value Sometimes a small dose of from 0 1 to 0 2 gm (1½ to 3 grains) once a day is all that is needed At other times, especially when there is no marked arteriosclerosis and no marked kidney or liver lesion, very high blood pressures are reduced only by very large doses, even as much as 10 grains a day Such treatment is often of very great benefit Of course, if one of the persons under consideration has symptoms of hyperthyroidism, or if small doses of thyroid cause palpitation, the treatment is not indicated, on the one hand, and should be stopped, on the other Sometimes when the blood pressure cannot be reduced, in these cases without apparent organic lesions, and thyroid treatment is more or less successful, but at the same time causes great excitation, it may be combined with bromid medication, and then the benefit is sometimes very great

A patient who cannot sleep and who has hypertension may receive bromids if he is very irritable or if there are symptoms of thyroid irritability, but the most successful sleep and lowering of blood pressure is caused by chloral A dose of 0 5 gm (7½ grains) at night is generally sufficient and need not be long continued Chloral has been frequently given to reduce pressure in 0 2 to 0 25 gm (3 or 4 grain) doses, three times a day, after meals

Bromids, of course, will lower the blood pressure, but they depress all metabolism, interfere with digestion, and are not advisable for any length of time However, in some cases they cause a marked improvement in the patient's condition

Patients under treatment with chloral, bromids, and thyroid especially, should be carefully watched and the treatment modified to meet the varying conditions Patients under iodid need not be seen so frequently, those under nitroglycerin or alkalies still less frequently But all patients under the active management of hypertension should be seen at from one to three week intervals, and the urine should be repeatedly examined and the blood pressure carefully recorded

HYPOTENSION

A low systolic pressure and a low diastolic pressure may not cause any symptoms or give any cause for anxiety It does show, especially if the systolic pressure is below normal for the age of the person, a lack of reserve power, and such patients will not well stand serious illnesses, operations, injuries or serious physical and mental strains If there is a low systolic pressure and a high diastolic pressure, this shows impairment of the heart, whether or not any other organic lesion is present

Generally speaking, a low systolic pressure shows a weak acting heart muscle, and a very low diastolic pressure shows a dilated condition of the arterioles In aortic regurgitation this low diastolic pressure is constantly in evidence, and, if the systolic pressure is not below normal, does not signify that the circulation is insufficient If the systolic pressure is not very low but the diastolic is high, vasodilator drugs, by lowering the diastolic and increasing the pulse pressure, are often of benefit If there is increased venous congestion and increased venous pressure and a high diastolic pressure with a low systolic pressure, digitalis not only will often raise the systolic pressure, but also will lower diastolic by improving the general circulation and removing venous congestion

While intestinal indigestion and absorption of toxins often tend to raise the blood pressure, some toxins thus absorbed, especially of the ptomain variety, lower blood pressure and cause shock, perhaps by weakening the muscle of the heart or by acting on the vasodilator vessels, or they may cause dilation of the vessels of the abdomen and in this manner lower blood pressure

Very low blood pressure after exertion, after severe physical exercise, or after competitive athletic tests shows that the heart cannot sustain such strains and should not be again subjected to them In severe mental and physical strains the suprarenals may be inhibited in their activities, and a hypotension, more or less prolonged, may result

Sewall[65] believes that hypotension is frequently due to splanchnic stasis, and that sluggish circulation in this region, especially when the person is in the erect posture, is an important factor in general physiologic disturbances or lack of general tone When the splanchnic vessels are dilated there is also a lack of proper tone to the cerebral vessels, and this may be a cause of mental weariness and neurasthenia While ptosis of organs in the abdomen and a flaccid condition of the musculature of the abdomen are frequent causes of this splanchnic stasis, and therefore hypotension, especially in women, it is quite possible that suprarenal insufficiency will allow this condition of the splanchnic vessels to occur frequently

Serious illness and infections will lower the blood pressure sometimes to a dangerous point Of course, hemorrhages lower the blood pressure Shock and collapse cause lowering of blood pressure, frequently to a fatal point, and Cornwall[66] finds that a patient may live several hours with a systolic pressure below 60, and several days when it is below 70, that he may walk around with a systolic pressure of 90, provided the pressure pulse is sufficiently large, that is, that the diastolic pressure is low enough to cause a circulation of blood Of course, if the difference between the systolic and the diastolic pressure is diminished to the vanishing point, the patient cannot stand it, and dies. It should be remembered that just before death venous pressure is likely to rise, and this may raise the diastolic pressure.

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[63] Lawrence C H The Effect of Pressure Lowering Drugs and Therapeutic Measures on Systolic and Diastolic Pressure in Man Arch Int Med April 1912 p 409

[64] Capps J A Effect of Iodids on the Circulation and Blood Vessels in Arteriosclerosis The Journal A M A Oct 12 1912 p 1350

[65] Sewall Am Jour Med Sc April 1916 p 491

[66] Cornwall New York Med Jour March 7 1914 p 470

With the progressive toxemia of typhoid fever the blood pressure will become lowered from the myocardial degeneration. Of course, the blood pressure will drop suddenly from a hemorrhage, but Piersol[67] finds that with perforation the peritoneal irritation may cause a rise of blood pressure, and he thinks that this sign may precede for several hours more positive signs of the accident.

As in other infections, the blood pressure will fall in scarlet fever, but if it suddenly rises, a kidney complication is to be looked for. The blood pressure always falls *in diphtheria, and always falls in acute* rheumatism, consequently, strenuous sweating measures in the treatment of rheumatism should not be used as soon as the blood pressure has become low.

Failing circulation in pneumonia, if accompanied by low blood pressure, requires different treatment from the failure of circulation in these cases when the blood pressure is high. Hence the relationship of the systolic to the diastolic pressure in pneumonia is of very great importance in deciding on the proper treatment. In one instance the blood pressure must be lowered, in the other, the heart must be stimulated.

While tobacco, in ordinary conditions, raises the blood pressure, after the heart has been seriously injured by the nicotin, the blood pressure is likely to be found lower, and such patients are quickly benefited by the withdrawal of the tobacco and the administration of digitalis.

Anemia almost invariably causes low blood pressure. Also in a patient who has hypotension without any distinct evidence of disease, especially if there has been any possible exposure to tuberculosis, that disease should be suspected and every test made to eliminate such a cause.

Serious cachexia, such as that caused by carcinoma or other growths, gives low blood pressure. Diabetes causes low blood pressure, provided there are no nephritis and no marked suprarenal stimulation.

Excessive use of alcohol, while tending to promote hypertension by the disturbances that it causes, may give, by causing a weak heart muscle, a permanent low blood pressure. A single large dose of alcohol always lowers the blood pressure.

Arteriosclerosis frequently reaches a stage when the blood pressure is low, and with atheroma of the arteries of the arms a true blood pressure is difficult to obtain. Addison's disease, or any other organic lesion of the suprarenals, will lower the pressure, while stimulation of the suprarenals increases the pressure. Any great drain on the system, whether from diabetes without nephritis, or from profuse diarrhea of any type, will cause hypotension. Occasionally a girl with chlorosis who is not menstruating may have an increased blood pressure. Many of the hemorrhagic or purpuric conditions will show a hypotension.

Meningitis in various forms may show a hypertension from cerebral and nervous irritation. Neurasthenic patients quite generally have hypotension, although occasionally with suprarenal disturbance they may have an increased tension.

In the hypotension of surgical shock and in shock during anesthesia, Henderson's findings[68] that hyperoxygenation and insufficient carbon dioxid may be partially responsible for the condition should be remembered, and it has long been known that carbon dioxid congestion, as caused by laughing gas anesthesia, for instance, increases the blood pressure.

A systolic pressure of 110 mm. or lower in an adult should be considered hypotension, anything below 105 mm. calls for treatment, and a systolic pressure of 100 or lower in an adult calls for rest from all active duties.

These patients are weary, they have mental and physical tire, may get short breathed, may have palpitation of the heart, and often have headaches and dizziness from imperfect circulation in the head. There may be edemas of the legs and ankles toward night. If such patients have the systolic blood pressure raised even a small amount, or if the diastolic pressure, which is very low, is raised even a small amount, they immediately feel better.

If the kidneys are normal, they should have meat as part of their diet. If they are not nervous and irritable, coffee and tea should be allowed, except at the evening meal. While sleep may tend to lower pressure somewhat, these patients' hearts require a long bed rest, in other words, they should go to bed at an early hour. They should rise early, however, in the morning, and, as recommended by Goodman,[69] they should perform mild calisthenic exercises before dressing.

The increased muscle tone thus caused raises the blood pressure somewhat, and the great depression before breakfast is not experienced. These patients rely on their morning coffee for bracing. If they have much indigestion at night which keeps them awake so that they do not get good comfortable rest, their largest meals should be the morning and noon meals, and the evening meal should be very light.

Pendent abdomens or ptosed abdominal organs should be held up by proper abdominal bandages or corsets.

If the bowels are constipated, only the vegetable laxatives should be used, if a drug is needed at all. Salines should not be allowed, or other cathartics which cause profuse watery discharges. If a brisk purge is required, castor oil is the best.

Plenty of fresh air, and mild exercises in the open air all tend to increase the pressure. Graded walking, climbing, or other more interesting exercises are advisable, as all tending to raise the pressure, provided that at no time are they carried to the point of exhaustion.

Forced feeding may be useful. Cool sponging in the morning, if there is proper reaction, is often of benefit. Iron may be indicated, bitter tonics may be indicated. Digitalis and strychnin are often of advantage. *Caffein may be used as a drug* as well as given in coffee and tea. Atropin may be of value in some forms of hypotension.

At times with a low systolic pressure, but a relatively high diastolic pressure, nitroglycerin is valuable.

More or less acute hypotension may occur in hot weather or with overheating, often termed heat exhaustion. Such patients should, if possible, go to a cooler region, whether to the seashore or to the mountains is unimportant. The treatment of dangerous sudden low blood pressure, as shock, will be discussed elsewhere.

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[67] Piersol Pennsylvania Med Jour, May, 1914, p 625

[68] Henderson Am Jour Physiol, 1910, xxvii, 158

[69] Goodman Am Jour Med Sc, April, 1914, p 503

New and Nonofficial Remedies

ARSENOBENZOL (DERMATOLOGICAL RESEARCH LABORATORIES, PHILADELPHIA POLYCLINIC) AND DIARSENOL (SYNTHETIC DRUG COMPANY)

Report of the Council on Pharmacy and Chemistry

Arsenobenzol is made by the Dermatological Research Laboratories, Philadelphia Polyclinic Philadelphia, Diarsenol is made by the Synthetic Drug Company, Toronto, Canada Each of these preparations like salvarsan, consists of the hydrochlorid of 3-diamino-4-dihydroxyl-1-arseno-benzene, with small admixtures of unimportant impurities The Council found these products to be substantially identical with salvarsan in composition and equal to salvarsan in therapeutic efficiency Both would have been regarded as entirely eligible for New and Nonofficial Remedies had it not been for a doubt on the subject of their legal status

The Dermatological Research Laboratories and the Synthetic Drug Company were therefore asked whether in their opinion the sale in the United States of Arsenobenzol (Dermatological Research Laboratories) and Diarsenol (Synthetic Drug Company) was illegal and if physicians using them are liable to legal proceedings by the owners of the salvarsan patent

Dr Schamberg on behalf of the Dermatological Research Laboratories replied

> " in all probability our product Arsenobenzol would be regarded by a court as an infringement on the salvarsan patents We have had a sort of gentlemen's agreement with the American representatives of the Farbwerke-Hoechst Company whereby our laboratories would not be interfered with in distributing Arsenobenzol to the medical profession during the period that salvarsan could not be obtained in the American market On the other hand we tacitly agreed to cease marketing our product when a sufficient supply of the German preparation became available to the profession of this country If in the future the supply of salvarsan should again become exhausted or so seriously impaired as to cause hardships in this country, we would again furnish the drug to physicians and hospitals Under such circumstances no court would construe that a physician using our drug was rendering himself liable to legal procedure

The Synthetic Drug Company replied

> we claim that Diarsenol is chemically identical with Salvarsan
>
> 'Without, however going into the question of whether it is manufactured by us exactly under the specifications of the patent in question we might point out that in any event our product Diarsenol is legally manufactured in this country (Canada) under a license and subject to a royalty which is paid to the commissioner of patents
>
> Whether this royalty is ultimately paid to the holders of the Canadian patent Meister Lucius & Brüning, or not may depend upon the treatment accorded to British patentees by the German government after the war
>
> "The same firm are the holders of the U S patent and we might point out that the salvarsan sold in the United States is not manufactured there but is imported from the patentees own factory in Germany
>
> "At the present time Meister Lucius & Brüning are not in a position to furnish for the United States the product made by them in Germany and as they are not attempting to manufacture in the United States they cannot be suffering any damage by the sale of our product, but on the other hand may in reality be profiting by it if ultimately they receive the royalties paid by us to our government
>
> On this account we do not think they could successfully maintain an action in the United States as they could not show that they are suffering any damage from loss of sales, and certainly not from the cutting of prices
>
> Whether or not they would institute legal proceedings it is impossible to say but so far they have not done so and our product has been on the U S market for nearly a year
>
> 'If an action were brought there might possibly arise questions as to the validity of the U S patents but there is no necessity of raising this question at the present time

Owing to the possibility of patent complications, and the apparently temporary status of at least one of these products, the Council deemed it advisable not to admit Arsenobenzol (Dermatological Research Laboratories) or Diarsenol (Synthetic Drug Company) to New and Nonofficial Remedies At the same time it desires to point out that these products are apparently identical with salvarsan

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THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES"

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN, IT COMPLIES *WITH THE RULES ADOPTED BY THE COUNCIL*

W A PUCKNER, SECRETARY

BENZIDINE — Para-diamino-diphenyl — 4 4′ diamino-dibenzene — $NH\ C_6H_4\ C_6H_4\ NH$

Actions, Uses and Dosage —Benzidine is used in medical practice for the detection of occult blood In the presence of hydrogen peroxid and acetic acid, benzidine is changed to a deep purple compound by the action of blood

The benzidine test for blood may be applied as follows To about 5 c c of a saturated solution of benzidine in alcohol or glacial acetic acid an equal volume of 3 per cent. hydrogen peroxid solution (solution of hydrogen peroxid, U S P), is added and then 1 c c of the solution to be tested If the mixture is not acid it is made acid with acetic acid A green or blue color indicates the presence of blood A control test in which water is substituted for the liquid under examination should give no coloration A number of modifications of the test have been proposed The test is said to detect blood in a dilution of 1 in 300,000 Many substances lessen the sensitiveness of the test, but do not inhibit it (tannin prevents it)

Benzidine is a grayish crystalline powder melting at 127 5 C to 128 5 C It is almost insoluble in cold water more soluble in boiling water but readily soluble in alcohol and in ether

Benzidine is dibasic forming salts which when soluble are hydrolyzed by water Benzidine dihydrochloride is quite soluble in water but requires that its solutions contain free acid to prevent precipitation of the benzidine monochloride Benzidine sulphate is slightly soluble even in hot water

If 0 1 gm benzidine be dissolved in 1 c c concentrated acetic acid (specific gravity 1 064) and 10 c c solution hydrogen peroxid (3 per cent) be added no color at all or at most a very faint color should develop within three minutes if a small quantity of blood is now added a blue color should appear

Benzidine-Merck (For Blood Test) —A non-proprietary brand complying with the standards for benzidine

Manufactured by E Merck Darmstadt Germany (Merck & Co New York)

Occult Blood Test (Dudley Roberts) —This consists of tablets each containing 5 grains of a trituration of benzidine 1 part and sodium perborate, 20 parts, and glacial acetic acid (supplied in boxes containing 100 tablets in vials, and a bottle of glacial acetic acid)

Actions Uses and Dosage —A tablet is placed in a small saucer or other suitable container, to it is added a quantity of the material to be tested (a weak solution of the stool or stomach contents, or urine), sufficient to wet thoroughly, but not to cover the tablet entirely, and then a drop or two of the acetic acid is allowed to fall on the tablet, if blood is present the tablet will turn greenish blue the extent of the coloration and the time of its development depending on the amount of blood present (To avoid contamination of the glacial acetic acid remaining in the bottle, care should be taken not to touch the tablet or specimen with the rod which is used to transfer the acetic acid for the test.)

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SATURDAY, SEPTEMBER 16, 1916

NEW OBSERVATIONS ON THE PINEAL GLAND

In a recent review of the current opinions of the function of the pineal gland, attention was directed to some of the conflicting and negative evidence on the subject [1] The pineal body undergoes a normal, physiologic atrophy at the time of puberty This fact, taken in connection with older observations in cases of tumor of the gland occurring before puberty which have been associated with a marked precocity in the realm of both primary and secondary sexual characters, has supplied the basis for one theory of pineal function It assumes that the gland, when physiologically active, tends to inhibit the development of the sexual function On this hypothesis, interference with the function of the pineal body, either by experimental operative procedure or by the chance of tumor invasion, might accordingly be assumed to remove a natural physiologic restraint and thus permit a prolonged adolescence or exaggerated performance on the part of the organs concerned in sexual, if not in somatic development

With respect to overfunction of the pineal gland, the only procedure at present available for imitating this possibility consists in administering gland substance to adolescent animals This has been attempted in a variety of ways with conflicting results If one accepts the contention that positive results are more suggestive and valuable than negative experiments in this type of investigation, it may be pointed out that several investigators have reported a noticeable overgrowth in the body weight of animals fed with pineal substance or receiving it by other modes of administration

Underfunction of the pineal body — the condition which might be anticipated to occur with the encroachment of tumors on this organ — ought to be imitable by surgical extirpation of the gland Any one conversant with the anatomic topography of the region in which it is located will appreciate the very serious difficulties presented by an operation for removal of the pineal body Dandy's canine pinealectomies were apparently attended with negative results [2] The latest investigator to undertake work in this field is Horrax,[3] who has made successful extirpations on guinea-pigs and rats He found that pinealectomized male guinea-pigs show a hastened development of the sexual organs, manifested before maturity by a relative increase in size and weight, both of the testes and the seminal vesicles, over control subjects of the same litter Histologically the testes and seminal vesicles of these animals, if taken before the age of sexual maturity, show a more advanced physiologic state than their controls The pinealectomized females appear to show a tendency to breed earlier than controls of the same age and weight Some evidence of hastened maturity has been obtained with rats also

Obviously careful control experiments are essential in order to insure conclusions derived from observations of the outcome of surgical interference in regions, such as the midbrain, in which many structures may be damaged incidentally Horrax very properly asks, Can the changes which have been observed in these experiments be attributed to the loss of the pineal gland, or may they be attributed to some other injury of glandular or nervous tissue? The only other intracranial organ which is known to influence bodily growth and sexual development is the pituitary body, and it is conceivable that, as a result of the operation which has been described, some secondary changes might occur in that structure, due, possibly, to a postoperative hydrocephalus scar formation, but such a condition has never been observed and, furthermore, it would have led to changes the reverse of those we have seen, namely, to skeletal undergrowth and delayed sexual development Microscopic study of the pituitary in the animals which had been operated on disclosed no departure from the normal

There is a pathognomonic syndrome in which, coupled with a general bodily overgrowth, the size of the primary sex organs is the most striking feature in the records of the cases Mental precocity is also a well marked symptom The phenomena are usually seen in boys before the age of puberty, and at necropsy in all cases a tumor replacing the pineal gland has been found In the case of the girl, no disturbance of the sexual organs was apparent, adiposity being the only metabolic finding Horrax remarks that if we are right in assuming that the pineal is a gland, and that its secretion exerts any influence on bodily processes, such evidence as we have would seem to indicate that this influence is exerted on inhibiting physical and mental adolescence A report of three cases from Cushing's clinic[3] has just been added to the literature This number of observations, of course, does not permit sweeping deductions on so important a subject In view of previous indications, coupled with the newer studies on the physiology of the gland in animals,

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[1] The Pineal Body, editorial, The Journal A M A, Jan 29, 1916, p 360

[2] Dandy, W E Extirpation of the Pineal Body, Jour Exper Med, 1915, xxii, 2

[3] Horrax, Gilbert Studies on the Pineal Gland, I, Experimental Observations, Arch Int Med, May, 1916, p 607, II, Clinical Observations, p 627

Horrax ventures the impression that sexual ripening occurs when the pineal ceases to be functionally active, or when it is removed, and on this basis he is inclined to the belief that the tumor in most of these clinical cases is associated with an inhibition of the normal products of pineal secretion If this were really the case, however, one would suppose that glandular feeding would postpone adolescence, but from the observations of Dana and McCord, the reverse seems to occur It is evident that further investigation of the physiology of the pineal gland is urgently demanded and is likely to yield fruitful results

THE TARIFF ON DYESTUFFS, AND DRUG PRICES

Owing to the interdependence of dyestuffs and medicinal chemicals derived from coal-tar (the so-called coal-tar synthetics), any conditions influencing the production of the former necessarily are of interest to physicians Most coal-tar "synthetics" have been developed either in the attempt to create new markets for the intermediate products in dye manufacture, or to utilize the by-products from the color industry Dyes are extensively used in the cotton, leather, paint, silk, wall-paper and woolen industries, and at the beginning of the present European war, American manufacturers were producing less than 15 per cent of the quantities used in this country Of the foreign makers, Germany produced by far the largest amount In that country the industry had grown to vast proportions, partly as a result of the efforts of manufacturers to utilize the results of chemical research, and especially because of the paternal attitude of the German government toward home industries and the development of trade After the war broke out, the prices of medicinal chemicals advanced enormously, as may be seen by a few comparisons, the prices being for pounds

ADVANCE IN PRICES OF MEDICINAL CHEMICALS

Drugs	Price per Pound		
	August 1914	August 1915	August 1916
Phenol (carbolic acid)	$0.15	$1.50	$0.75
Salicylic acid	0.25	2.00	3.00
Aspirin (acetylsalicylic acid)	6.50	8.80	13.00
Sodium salicylate	0.39	2.00	3.00
Salol	0.75	2.60	6.50
Acetphenetidin	0.80	6.50	30.00
Resorcin	1.05	2.60	24.00
Antipyrin	3.75	15.00	32.00
Phenolphthalein	1.85	5.25	15.50
Methylene blue	1.40	3.25	26.00

It is presumable that these advances in prices have not been made necessary in all cases but that values have been forced up by manufacturers and speculators For example, phenol (the basis of salicylic acid) is now manufactured here and its price is but half of that of a year ago, yet the prices of salicylic acid and aspirin have advanced Inasmuch as aspirin is doubtless now made in the United States, presumably from salicylic acid which, in turn, had American-made phenol as a basis, the prices of phenol and aspirin should be parallel

The revenue bill, which has just been passed by Congress, contains provisions designed to foster and maintain a dyestuff industry in this country The bill admits parent dye materials and parent coal-tar medicinals free, but assesses 15 per cent ad valorem and 2.5 cents a pound specific on intermediates, and 30 per cent ad valorem and 5 cents a pound specific on finished products The new tariffs become effective at once, but there are provisions for a graded reduction in rates under certain specified conditions Experience with previous tariffs has shown that, if intermediates are given preferred rates, the goods will be imported so nearly finished that they need but a mere touch for completion, so that the American treasury and American industry both suffer

The revenue bill also contains an "antidumping" clause This forbids the sale in this country of imported goods at prices less than those for which they are sold in the country of issue For years a provision of this kind has been sought in connection with patent legislation but, as passed in the revenue bill, it has broader applications than if applicable only to patented goods

At present benzene (benzol, C_6H_6), phenol and toluene (the raw products of many dyes) are being manufactured in the United States in large quantities, but owing to the demand for them in the explosive industries, the prices are abnormally high As soon as the war closes, these products probably will be largely diverted into dyestuffs channels, and prices may be expected to fall The effect of the tariffs, however, on the cost of medicinal chemicals after the war (discounting speculative features) will be a tendency toward maintaining prices at higher levels than before the war Under the stimulation of the present high prices and the guarantees of protection after the war, it is to be hoped that American manufacturers will soon produce all of the dyes and coal-tar synthetics needed for home consumption

SCIENTIFIC INQUISITIVENESS—AN ANECDOTE

In describing the characteristics of a scientific investigator, Liebig once pointed out that certain disciplines, like mathematics, are merely an indispensable instrument for the attainment of scientific ends He remarked that it is not the mere instrument which plans and executes the work, but the human intellect It is obvious that without the power of observation, without sagacity, all mathematical knowledge is useless We may imagine a man who, favored by a good memory, has rendered himself intimately acquainted with every theorem of mathematics and has obtained an eminent degree of skilfulness in handling this instrument, but is altogether unable to invent a problem for solution If we propose to him a problem, and thus give him the conditions for its solution, he will succeed in obtaining an answer by performing the current operations with which he is familiar, and express it in a formula consisting of certain symbols, the meaning of which, however, is perfectly unintelligible to him, because he is deficient in other attainments essential for judging of its truth Such a man is a mere calculating machine But as soon as he possesses the capacity and the talent of proposing a question to himself and testing the truth of his calculations by experiment, he becomes qualified to investigate nature For whence should he derive his problems, if not from nature or from life?

The capacity for asking questions which stimulate the spirit of investigation is not a common attainment, even among so-called educated persons It is a trait which goes hand in hand with the ability to discern unique opportunities and to utilize them in the quest for knowledge It was with this sort of singular foresight that William Beaumont, "the pioneer American physiologist," recognized the opportunity for scientific discovery that presented itself when Alexis St Martin received the gunshot wound that transformed him into the subsequently famous man "with a lid on his stomach," and thereby made him a suitable subject for the study of the physiology of digestion

We cannot refrain from quoting a striking instance of that scientific inquisitiveness and uncommon capacity of formulating a problem which characterized the late S Weir Mitchell It serves as an instance not only of the mental alertness of this eminent physician, but also of the acumen which furnishes an opportunity The incident relates to the days when Mitchell was engaged in his classic researches on the poison of snakes—the subject of subsequent fruitful studies In an address at the dedication of the Mitchell Memorial Building of the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, W W Keen, who aided Mitchell in the early experiments, relates the story as follows

> One hot July just after we had collected one or perhaps two teaspoonfuls of the liquid snake-poison in a small cup, Mitchell was called out of town for three or four days Usually we immediately spread out this liquid in a thin layer so that it would dry quickly before decomposition set in, but by an oversight on this occasion it was left in the cup in bulk, and naturally in such weather underwent quick decomposition On his return we went to the laboratory and on opening the door were almost knocked down by the horrible stench Who of us here would not have sought the source of the smell and in all haste have thrown it away? Not so Mitchell Instantly he turned to me and said, "I wonder if decomposition has destroyed its poisonous character Let's try it" That was always his desire—to put everything to the test of experiment A single experiment showed that for a pigeon it was as virulent as ever How subtle and potent was the poison that even decomposition left intact! But not to every form of life was it even then a poison, for disporting themselves in the cup were a host of nimble little animalculae having apparently the time of their lives

This is the spirit of the true investigator Opportunity for service in science comes to most men in the medical profession Few, indeed, have the vision or the inclination to grasp the favorable chance

THE ALKALI RESERVE OF THE BLOOD

The neutrality regulation of the body or the maintenance of a certain equilibrium between acids and bases is accomplished by the cooperation of a variety of factors In discussing the restitution of basic and acid substances which are used up in the physicochemical equilibriums of neutrality, L J Henderson has pointed out that this may be both exogenous and endogenous [1] He notes that there is an exogenous restitution, which depends on the presence of large amounts of unchangeable basic and acid substances in the food This process is ordinarily left to chance and a mixed diet, but in case of need may be usefully controlled The investigation of Blatherwick[2] on the diet illustrates this possibility while the value of soda when administered in acidosis is a more familiar instance The endogenous restitution involves the necessary and, in normal metabolism, unvarying production of carbonic acid, phosphoric acid, sulphuric acid and other substances, and secondly the very variable manufacture of ammonia instead of neutral material, during the course of nitrogenous metabolism The latter process is not well understood In such conditions as diabetic acidosis a large increase in the production of ammonia is perhaps the chief means of prolonging life, but on the other hand there are also conditions of acidosis in which the production of ammonia is actually diminished below the normal amount

The part played by the stored alkali of the organism in these regulatory phenomena has attracted special attention of late It has been said that the constancy of alkalinity is quite the earliest and most universal physicochemical regulation of active protoplasm Modern investigations by Palitzsch show that the ocean itself is likewise constant in its alkalinity "In the course of long experience with the problems of acid-base metabolism a conviction has gradually been established in my mind," Henderson writes, "that such reserves of alkali, in substantial amounts, must exist and not infrequently suffer mobilization" The blood itself, which is the immediate seat of important acid-base regulatory reactions, maintains an efficient alkali reserve In the plasma it is constituted by bicarbonates and alkali protein compounds, together with small quantities of alkali phosphates Under normal conditions these substances are present in very constant quantities

In a recent study of the alkali reserve, Marriott[3] describes acidosis as a diminution of this reserve which may be recognized by a variety of clinical symptoms and by characteristic alterations in the composition of the blood, urine and alveolar air Under this definition acidosis implies a diminution of the alkali reserve of the blood plasma, though not necessarily a change in its hydrogen ion concentration Marriott gives this lucid picture of the regulatory reactions the alkali reserve maintains the plasma at a constant slightly alkaline reaction, despite the fact that acid products of metabolism are continually being poured into the blood Chief among the acid products, so far as total quantity is concerned, is carbonic acid An almost infinitesimal change in reaction in the direction of acidity occurs This slight change is sufficient to stimulate the respiratory center The resultant pulmonary ventilation removes the excess of carbon dioxid, and the plasma reaction returns to its original point An excessive production of carbon dioxid in the tissues results in a greater change in the reaction of the plasma, with a consequent increased stimulation of the respiratory center and increased pulmonary ventilation This tends to accomplish the removal of the extra carbonic acid No depletion of the alkali reserve occurs If, however, a nonvolatile acid, such as sulphuric, phosphoric or beta-oxybutyric, is poured into the plasma, a certain amount of the alkali reserve is neutralized, and the reaction of the plasma shifts toward acidity Increased pulmonary ventilation occurs, but this, of course, cannot effect removal of the nonvolatile acid An extra amount of carbonic acid can be removed, however, so that less than the normal amount remains in the plasma This decrease in carbonic acid may compensate for increase in nonvolatile acids, and the reaction may return to the normal point The alkali reserve, however, is depleted, as it is partially neutralized by the nonvolatile acid When the plasma with its depleted alkali reserve again comes in contact with the tissues the carbonic acid normally produced causes a greater change in reaction than when the alkali reserve was intact As a result there is an overstimulation of the respiratory center, the evidences of which are hyperpnea and a diminished alveolar carbon dioxid tension If the increased pulmonary ventilation is sufficient to maintain the carbonic acid content of the plasma at a low enough level, no appreciable change in reaction occurs If, however, the alkali reserve is not replenished and if acid continues to pour into the plasma, a time may come when the increased pulmonary ventilation can no longer compensate by removal of carbonic acid In such an event, the reaction of the circulating plasma becomes constantly less alkaline until a point is reached which is incompatible with life This point is, approximately, neutrality

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[1] Henderson, L J The Excretion of Acid in Health and Disease, Harvey Lectures, 1914 1915, Series X, Philadelphia, J B Lippincott Company, p 132

[2] Blatherwick, N R The Specific Role of Foods in Relation to the Composition of the Urine, Arch Int Med, September, 1914, p 409

[3] Marriott, W McK A Method for the Determination of the Alkali Reserve of the Blood Plasma, Arch Int Med, June, 1916, p 840

It is thus evident that the estimation of the alkali reserve in the plasma or its depletion may be of decidedly greater interest than the measurement of the reaction, since it is only in severe acidosis that a change in the latter occurs For ascertaining the reserve alkalinity, Marriott has devised a new method[3] In a series of cases including nephritis and diabetes in adults, recurrent and idiopathic acetonemia, and severe diarrheas in children, all of which patients exhibited clinical or laboratory evidences of acidosis, the reserve alkalinity of the blood serum showed deviations from the normal The more severe the acidosis, judged by the clinical symptoms, the lower were the figures obtained Especially striking was the parallelism between alveolar carbon dioxid tension and the reserve alkalinity The latter always shows an increase after the administration of alkalies, but does not necessarily reach its normal value The new method has a value that will be appreciated by many therapeutists, in that it gives information as to the probable amount of alkali needed to replenish the reserve A determination following the administration of alkali shows whether or not the amount has been sufficient Above certain analytic values that have been ascertained by experience, the acidosis may be successfully combated by dietetic regulation or by the administration of alkali by mouth, when the alkali reserve falls lower, intravenous administration of alkali is usually indicated Thus every new experimental method of value paves the way for possible improvements in either medical diagnosis or therapy or both

ANTIMONY IN FOODS

Poisoning of mysterious origin is doubtless more common than is generally appreciated By this we do not refer to the obviously profound effects of large doses of highly deleterious compounds, but rather to the more subtle intoxications of a mild grade which often escape notice because of the unexpected ways in which they may arise Industrial poisonings are occasionally of this character Recently we called attention to the possibilities for harm in the accidental employment of daffodil bulbs as food[1] Some time ago the warning of the Hygienic Laboratory of the United States Public Health Service against the use, for milk bottles, of rubber nipples containing antimony was mentioned[2] Recently unexpected possibilities of harm have been detected in some of the enameled cooking utensils that are sold in American markets[3]

When these dishes first began to supplant crockeryware, considerable agitation arose in Europe regarding the possibility of lead poisoning from food prepared in dishes highly glazed, because this metal is employed in the arts in which glazing is carried out In the case of sheet steel enameled ware, for which a glaze of great brilliancy is not required, it has been possible to use other substances to act as a flux It is now widely believed that lead is not used in the manufacture of popular enameled dishes Investigations by it in a formula consisting of certain symbols, the meaning of which, however, is perfectly unintelligible to him, because he is deficient in other attainments essential for judging of its truth Such a man is a mere calculating machine But as soon as he possesses the capacity and the talent of proposing a question to himself and testing the truth of his calculations by experiment, he becomes qualified to investigate nature For whence should he derive his problems, if not from nature or from life?

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[1] Poisonous Properties of the Garden Daffodil Current Comment The Journal A M A July 22 1916 p 290

[2] Bull 96 Hyg Lab U S P H S 1914 p 56 Rubber as a Source of Hygienic Danger Editorial The Journal A M A Nov 28 1914 p 1954

[3] Miller Elizabeth W The Solution of Antimony from Enameled Cooking Utensils Jour Home Econ 1916 viii 361

The capacity for asking questions which stimulate the spirit of investigation is not a common attainment, even among so-called educated persons It is a trait which goes hand in hand with the ability to discern unique opportunities and to utilize them in the quest for knowledge It was with this sort of singular foresight that William Beaumont, "the pioneer American physiologist," recognized the opportunity for scientific discovery that presented itself when Alexis St Martin received the gunshot wound that transformed him into the subsequently famous man "with a lid on his stomach," and thereby made him a suitable subject for the study of the physiology of digestion

We cannot refrain from quoting a striking instance of that scientific inquisitiveness and uncommon capacity of formulating a problem which characterized the late S Weir Mitchell It serves as an instance not only of the mental alertness of this eminent physician, but also of the acumen which furnishes an opportunity The incident relates to the days when Mitchell was engaged in his classic researches on the poison of snakes—the subject of subsequent fruitful studies In an address at the dedication of the Mitchell Memorial Building of the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, W W Keen, who aided Mitchell in the early experiments, relates the story as follows

> One hot July just after we had collected one or perhaps two teaspoonfuls of the liquid snake-poison in a small cup, Mitchell was called out of town for three or four days Usually we immediately spread out this liquid in a thin layer so that it would dry quickly before decomposition set in, but by an oversight on this occasion it was left in the cup in bulk, and naturally in such weather underwent quick decomposition On his return we went to the laboratory and on opening the door were almost knocked down by the horrible stench Who of us here would not have sought the source of the smell and in all haste have thrown it away? Not so Mitchell Instantly he turned to me and said, "I wonder if decomposition has destroyed its poisonous character Let's try it" That was always his desire—to put everything to the test of experiment A single experiment showed that for a pigeon it was as virulent as ever How subtle and potent was the poison that even decomposition left intact! But not to every form of life was it even then a poison, for disporting themselves in the cup were a host of nimble little animalculae having apparently the time of their lives

This is the spirit of the true investigator Opportunity for service in science comes to most men in the medical profession Few, indeed, have the vision or the inclination to grasp the favorable chance

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1 Henderson, L J The Excretion of Acid in Health and Disease, Harvey Lectures, 1914 1915, Series X, Philadelphia, J B Lippincott Company, p 132

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a lot of other little indebtednesses which he was expecting or wanting to meet. So he sat down at his desk and said, "Who's first, please?" Mrs. Jones came in with Johnny, aged 9, Mary, aged 11, and Susie, aged 13. "It must be an epidemic," thought Dr. Scribbler. "Doctor," said Mrs. Jones, "I can't send the children to school without a health certificate. The papers say that you are to give them to us free." Gone were the visions of luxuries and paid-up necessities. The doctor questioned the mother closely as to the children's past activities, examined each child's throat, nose, ears, skin and reflexes, and wrote out a certificate for each. By this time the congestion in the waiting-room had increased tremendously. The doctor took off his coat, refilled his fountain pen, and called for the next lot. By 12—he had worked right past the 11 o'clock hour—he had examined 150 children. At 12:30 the examination had assumed this form: "Where've you been last three weeks? Anybody sick near your house? Open your mouth; say 'Ah.' That's all." And he wrote another certificate. By 8 p. m. he had examined—save the mark—400, and his total income was $0.00. He stepped out into the waiting room and addressed the remaining applicants, "You will have to come back tomorrow." Just then a man entered. "Come right in, Mr. Smith," said Dr. Scribbler. "Doctor," said Smith as he walked into the office, "I have to collect some accident insurance, and the company sent me these blanks and said you will fill them out for me free." When they examined Dr. Scribbler at the hospital, an hour later, the diagnosis was "acute shock superinduced by writer's cramp."

PLAYING TO THE GRANDSTAND

"Grandstander" is a term of more than mild reproach used to characterize the athlete who plays his game in showy fashion with an eye to the plaudits of the onlooking multitude. In football, he is always limping after a tackle; in baseball, he is excessively active, making unnecessary motions and attempting to cover ground he was never meant to cover; in golf, he adjusts his tee with a nicety which can have no effect on the distance of his drive, and if he "slices," the "gallery" is indulged with an exceedingly technical discussion of just how it happened. No one is so inclined to "grandstand" as the American officeholder or public official. The medical aspects of the matter are being displayed in the present epidemic of infantile paralysis. The measures employed by some officials to stay the progress of the epidemic, while apparently logical in every instance, at times impress the average observer as being merely an attempt to play to the grandstand. In some communities the health officers appear daily in interviews in which they call attention to their immense activities in preventing the spread of the disease. Every move is chronicled in the newspapers, and press notices are sent to those papers which fail to interview the official personally. Commissions are appointed to investigate when there are no funds for such purposes, and in some instances when there are not enough cases to form a respectable basis for an investigation. Frequently a "grandstander" in athletics is rewarded merely by the hisses of those whose encomiums he seeks. It would not be strange if a similar fate should befall some of those public officials who carry the unsportsmanlike attitude of the "grandstander" into the care of the public's health.

PREVENTION OF ABORTION

Congress has voted an appropriation of $50,000 for the investigation and control of abortion—but it is a disease of cattle and not of man that is to be investigated and controlled, and the undertaking is under the direction of the Bureau of Animal Industry. Why not appropriate $50,000 for the investigation and control of abortion among human beings, and let the Public Health Service do the work? There is certainly every year a sufficient number of undesired and unplanned abortions, and a sufficient number of desired and planned abortions which would never be consummated, were the possible consequences known, to justify such an effort.

LIGHT PRODUCTION IN ANIMALS

The firefly, with its intermittent glowing, has always been regarded with wonder by all children and many adults. Years ago it was found that the dried luminous organs of the firefly will glow if moistened with ordinary water, but that no light is emitted if the oxygen is removed, as by boiling the water. In 1884, Raphael Dubois of the University of Lyons, working with *Pyrophorus noctilucens*, the West Indian firebeetle, demonstrated that there were two substances present in the luminous organs, one a thermostabile substance, luciferin, and the other a thermolabile enzyme, luciferase. He stated that luciferin was an albumin having acid properties and an active reducing power. It was oxidized readily with luciferase, potassium permanganate, peroxids, etc., giving off light and forming amino acids. Luciferase, on the other hand, had all the properties of an oxidizing enzyme. The work of Dubois has recently been confirmed by Harvey,[1] who studied *Pyrophorus*, the eastern American fireflies, *Photinus* and *Photuris*, and luminous bacteria. Harvey states that there is no doubt as to the existence of luciferin and luciferase, although he was unable to isolate the latter from luminous bacteria, probably because it occurs in an endo-enzyme. He finds that luciferase of one form will act with luciferin of another form, and vice versa. Whether or not all forms of luciferin and luciferase, respectively, are identical, is debatable. A luminous reaction which parallels animal light production may be made by taking an almost inconceivably small concentration of pyrogallol in water (1:254,000), adding first some vegetable oxidases (potato or turnip juice), and then some hydrogen peroxid. The pyrogallol plus hydrogen peroxid corresponds to luciferin; the vegetable oxidase corresponds to luciferase. In the foregoing action, mammalian blood may be substituted for the plant juices Although there is much work to be done, especially from a chemical standpoint, to prove it, yet the phenomenon of bioluminescence in the firefly appears to be simply an unusual enzyme reaction

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[1] Harvey, E. Newton: The Mechanism of Light Production, Science, Aug. 11, 1916, p. 208; Experiments on the Nature of the Photogenic Substances in the Firefly, Jour. Am. Chem. Soc., 1915, xxxvii, 397.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

DISTRICT OF COLUMBIA

Poliomyelitis in the District—Four new cases of poliomyelitis were reported during the week ending September 9, of which two were the result of infection outside the District

Opening of Schools Postponed—Notwithstanding a report from the health officer that such action was not necessary, the board of education has postponed the opening of the public schools from September 18 to October 2 on account of poliomyelitis The health officer reported that poliomyelitis had prevailed in the District to a relatively slight extent, that both knowledge and experience with respect to the disease indicated that the decline that had already begun would continue, and that there was no evidence to show that the disease was spread through school attendance

Appointments to be Made in the Health Department—Search is being made for the most available persons to fill two offices in the health department created by Congress in the appropriation bill enacted September 1 Appointments will be made, it is stated, without reference to residence in the District, in order to get the most efficient service A chief medical and sanitary inspector is to be appointed, who, under direction of the health officer, is to give his whole time to, and exercise direction and control of, the medical and sanitary conditions of the public schools, at a salary of $2,500 a year He will assume charge of the thirteen medical inspectors and five graduate nurses now in the service A chief food inspector, at $1,800 a year, is authorized by the appropriation act, to have general supervision and control of the food inspection service, comprising seventeen subordinate inspectors

Tuberculous Persons to be Excluded from Schools—The attendance at public or private school of any person suffering from any communicable form of tuberculosis, either as a pupil, teacher, janitor, or helper, except at schools maintained solely for the instruction of tuberculous pupils, is forbidden by a regulation promulgated by the commissioners of the District, to take effect October 1 There is no school in the District maintained for the instruction of such pupils, but it is hoped that the promulgation of this regulation will lead to the establishment of classes for them As indicating the need for this regulation and for the establishment of such classes, the health officer pointed out that in November, 1915, the records of the health department showed 127 children suffering from communicable forms of tuberculosis and in attendance at school, and that during 1915 there were reported 114 new cases among persons between 5 and 20 years of age

ILLINOIS

Personal—Dr Ernest M Ewers, Apple River, recently of San Juan, P R, sails from San Francisco, October 7, to take up work in a hospital in the Orient under the Presbyterian Board of Foreign Missions——Dr Charles C Peck, Harvard, is a candidate for renomination as coroner of McHenry County——Dr William M Hanna, Aurora, was elected surgeon-general of the Grand Army of the Republic at its recent encampment in Kansas City——Dr Ira O Paul, Winnebago, announces his candidacy for coroner of Winnebago County

Chicago

Asks Appropriation for Poliomyelitis—Health Commissioner Robertson has asked the school board to appropriate $15,000 for laboratory work in connection with the medical inspection of schoolchildren

Doctors' Fees Held Up—The bills of eight physicians who have served on boards for the examination of feebleminded persons have been reduced by the board of county commissioners in one instance from $170 to $5, and in others from $265 to $30, $60 to $5, $105 to $15, $45 to $5, $40 to $5, and $110 to $30

Personal—Dr Albert E Halstead has been asked to take charge of a French base hospital on the west front——Dr Christian B Luginbuhl has been appointed surgical attache to the American Legation, Berlin——Dr P J H Farrell is a candidate for congress from the ninth district on the Democratic ticket

Typhoid at Pumping Station—It is reported that three employees of the Sanitary District of Chicago have died from typhoid fever during the last week and that three other cases have occurred, all traceable to infection at the Lawrence Avenue pumping station, where the hygienic conditions are said to be deplorable

Children Must Have Certificates—By joint action of the board of education and the commissioner of health, all pupils on entering school this fall must present certificates from authorized physicians that said pupils have no contagious or infectious disease and have not been exposed to any such disease within two weeks Medical school officers will examine pupils having no certificates, and physicians at large have been asked to cooperate by giving their services where needed The kindergartens of the public schools are not to open until after September 29 This measure is taken as an added guard against further increase of infantile paralysis or other contagion

MARYLAND

Personal—Dr William A Frontz of Johns Hopkins Hospital has been commissioned as major in the Royal Army Medical Corps, and has gone to France as a member of the Harvard unit

Infantile Paralysis—During the past week six new cases of infantile paralysis were reported to the city health department, and there were four deaths The state board of health received a report of a positive case of infantile paralysis in Dorchester County from Dr Lyle L Gordy of Cambridge The quarantine on several houses at Thistle Mills, near Catonsville, has been raised by the state board of health The first case of the disease to appear in Catonsville was reported during the week, but it is thought the child contracted the disease while on his way home from North Carolina

MASSACHUSETTS

Personal—Dr Albert B Toppan, attached to the quarantine station at Balboa, Canal Zone, is visiting his parents at Parker River——Dr Fred M Spalding, Boston, has been elected president of the Asquam Lake Fish and Game Association

Infantile Paralysis—During August there were 255 cases of infantile paralysis reported in the state, with thirty-three deaths, North Adams heading the list with eight deaths, Boston following with seven——The opening of the schools of Medford has been delayed until September 26 on account of the prevalence of infantile paralysis

Quarantine Station to be Sold—It is reported that the mayor of Boston has come to an agreement with the assistant secretary of the treasury whereby the federal government will pay $150,000 for the quarantine station at Gallup's Island, Boston Harbor The formal transfer of the quarantine was made through the federal health authorities, June 1

Pediatrists Meet on Hospital Boat—Sixty-five physicians connected with hospitals and dispensaries of Boston met at the invitation of Dr Henry I Bowditch, Boston, on the floating hospital, August 23 A meeting was held at which fifty selected cases treated by the hospital during the season were discussed and a paper was also given by Dr Wilson G Smillie, Boston, on "Infectious Diarrhea and Dysenteries" August 23 was the record day of the season for the floating hospital, when 303 patients were cared for

NEW YORK

Advice to Summer Residents Returning to City—Dr Hermann M Biggs, in response to numerous requests as to the advisability of summer residents returning to New York and other places where infantile paralysis is still prevalent, suggests that children be not brought back, unless it is imperatively necessary, until there is indisputable evidence that the active spread of the disease has ceased Such a time, Dr Biggs is quoted as saying, may be set not earlier than October 1 Up to September 8, there have been 2,520 cases of infantile paralysis reported to the state health department, with 268 deaths

New York City

Quarantine Against Cholera—The Ward Line steamship *Monterey* and the Spanish liner *Montserrat* which arrived recently from Vera Cruz were detained in quarantine while their passengers, sixty-seven in number, were sent to Hoffman Island for observation for twenty-four hours This step was deemed necessary in view of the report that cholera has broken out in Vera Cruz and several smaller Mexican ports

Domestic Animals and Poliomyelitis—Visiting nurses of the health department have been instructed that in visiting cases of poliomyelitis they shall make special inquiry regarding animals If they find anything suspicious they report the matter immediately and the suspected animals are removed by the health department for observation A veterinarian then examines the animal and if he finds the suspicions justified the animal is killed and a careful examination made A veterinarian also visits the shelter of the Society for the Prevention of Cruelty to Animals to see if there are any suspected cases of animal infection

Diabetes Research—Under the special George Blumenthal scholarship of $900 in the School of Medicine of Columbia University, Dr H Rawle Geyelin has made distinct additions to the knowledge of diabetes along clinical lines This work has developed into a special clinic and Dr Geyelin has been given an academic appointment as assistant In addition to this scholarship there have been three undergraduate scholarships established during the last two years, and in the coming year there will also be a fourth The students who receive these scholarships work as special assistants in the laboratory and are used as assistants in laboratory teaching

Infantile Paralysis—According to the records of the health department there have been, to September 9, 8,486 cases of infantile paralysis, with 2,100 deaths The daily average of cases during the first week of September has been slightly under fifty, ranging a little higher for the excessively warm days As was noted some time ago, the death rate has been somewhat higher than earlier in the epidemic, having advanced from 20 per cent, which was considered unusually large, to 41 per cent, with an average of about 25 per cent ——Announcement is made that Ward G Crampton, director of hygiene, physical training and athletics in the public schools, has conferred with the health commissioner with a view to securing the cooperation of the departments of education and health for the purpose of formulating a program for the instruction of the public school teachers with reference to the prevention of infantile paralysis during the teachers' institute——Mention has before been made of the effort of the health department to secure donors who have had infantile paralysis and who are willing to give blood to supply serum for the treatment of those having the disease This appeal has been again emphasized It is stated that up to the present time the amount of serum thus obtained has been only a fraction of what could well be used in the treatment of patients now entering the hospitals If such individuals will communicate with the health department either by telephone or letter all arrangements will be made by the department for collecting the blood either at the laboratory of the department or at the donor's home——The daily press announces that the Brace Fund is growing apace, and now amounts to something more than $31,000

Pay Clinic—The following opinion has been rendered by the attorney-general of the state on this subject at a request of the Medico Economic League

> You state that you are informed that certain large charitable institutions of this city contemplate the establishment of night pay clinics for medical and surgical treatment of persons on a general basis of One Dollar per visit This is a matter which may be considered when occasion arises Unless facts are presented showing the character of the dispensary and the manner of fixing the charge and the disposition of such funds it is impossible to pass upon the question
>
> I have no hesitancy in stating however that a charge even of One Dollar if made in accordance with the provisions of Section 290 by a dispensary which fully complies with the standards requirements and purposes of Section 291 of the State Charities Law would be lawful
>
> Whether a person who pays One Dollar for treatment at such a dispensary is a proper object of charity depends entirely upon the circumstances in each individual case If all that patient can afford to pay is One Dollar and he may obtain treatment by a specialist for that amount at a dispensary while treatment by the same specialist at the patient's home or the physician's office would be entirely above his means I do not see why such patient cannot avail himself of the services of such specialist There are many physicians and specialists of great skill and high professional standing who give time to dispensaries to treat just such cases It is their generous contribution to the general welfare of the community The advantage of a dispensary is that the patient will there find a coordinated group of specialized physicians, surgeons and pathologists working together in a comprehensive organization
>
> I see no danger of the use of dispensaries being abused by persons who can afford to pay the full quota of specialized surgical or medical treatment, *for Section 296 of the State Charities Law provides that*
>
> > 'Any person who obtains medical or surgical treatment on false representations from any dispensary licensed under the provisions of this article shall be guilty of a misdemeanor and on conviction thereof shall be punished by a fine of not less than Ten Dollars, and not more than Two Hundred and Fifty Dollars"
>
> I feel that dispensaries of the standard conducted by the institutions named by you should be encouraged and assisted, rather than hampered and hindered

PENNSYLVANIA

Municipal Hospital for Reading—The Driscoll farm, north of Reading, has been purchased by the city for a municipal hospital The price paid for the property was $30,000

Diphtheria in Conway—There are so many cases of diphtheria in and around Conway that the health and borough authorities have appealed to the state health department to intervene and assist in stamping out the outbreak

Personal—Dr Charles E Roderick, pathologist at the Hazleton State Hospital, has resigned to become laboratory superintendent for the Florida State Board of Health——Dr David Earl Hemphill, Tarentum, has been commissioned first lieutenant, N G Pa, and assigned to the First Ambulance Company, Pittsburgh——Dr Fred E Weddingen has been appointed city bacteriologist of Williamsport——Dr Oliver H Fretz has resigned after twenty-three years' service as president of the Quakertown Board of Health——Dr Andrew B Gloninger, Lebanon, has been mustered out of the United States Service——Dr Samuel H Gilliland, for seventeen years connected with the Alexander Vaccine Farms, Marietta, has resigned from the biologic laboratory of that institution——Dr Edward S Dickey, Pittsburgh, has returned after several months' service with the Russian army

Philadelphia

Club Outing—The Medical Club of Philadelphia held an outing on the Delaware River, September 11, on the steamer *Queen Anne*, which left the Arch Street wharf in the afternoon, returning about 10 o'clock.

Baby Death Rate High—Despite extensive plans made early in the summer to save the lives of babies there were more deaths of infants in July than during the same period of last year The number of children ranging in age from 1 day to 1 year who died during July, 1915, was 701, but this year 1,050 babies died

Personal.—Dr Charles K Mills has been appointed consulting neurologist to the Hospital for Contagious Diseases ——Dr Amin M Saleeby has returned from Greece——Dr William Henry Furniss III, who went abroad, July 1, on a mission for the Emergency Aid in Philadelphia and who was taken ill, is reported to be improving

Infantile Paralysis—The epidemic of infantile paralysis in Philadelphia shows no sign of abatement Ten more new cases were reported on September 9, and this makes the total of 649 cases since the epidemic began Three deaths were recorded in the previous twenty-four hours, making the total number of deaths 197 The death rate for the disease per thousand in Philadelphia is 30 36, in New York the rate is 24 76 and in Camden is 30 01 Camden reported one new case on September 9, making a total of fifty-four cases since the epidemic began, with sixteen deaths The disease is widespread throughout the city and has not been limited to any special sections Several adults as well as infants have contracted the disease and died The schools of Philadelphia will be closed until October 2, the only exception being college classes, and the third and fourth high and special classes in St Joseph's College These will open on September 18 Immune serum has been used to a considerable degree in the treatment of the disease in the Municipal Hospital Reports given out claim that the serum has a specific influence but no official statements have been issued The number of new cases reported for September 9 throughout the state of Pennsylvania totaled eleven Dr Samuel G Dixon, health commissioner, claims that any attempt to suppress reports of cases of the disease will be dealt with severely by the health authorities It has been stated that on several occasions the disease has been concealed in order to protect families from quarantine

SOUTH CAROLINA

Personal—Dr James E Daniel, Greenville, who has been serving for more than a year in the American Woman's War Hospital, Paignton, Devon, sailed from Liverpool on his return, August 12——Dr Le Grand Guerry has been elected president, and Dr Pinkney V Mikell, vice president of the Columbia Hospital Association

Health Officers Meet—A state federation of health officers was organized at a meeting called at the Isle of Palms, August 21, by Dr James A Hayne, Columbia, secretary of the state board of health, at which thirty-nine delegates from the state board of health and various county and city boards of health were present The following officers were elected president, Dr Charles E Low, Spartanburg, vice presidents, Drs Davis Furman, Greenville, and J Merceir Green, Charleston, and secretary, Dr Marion R Mobley, Florence

TEXAS

Camp for Tuberculosis Patients—It is expected that the city of Houston will donate a site for a camp for tuberculosis patients and that Harris County will cooperate with the city in providing the buildings for this purpose About ninety persons who have tuberculosis have appealed to the Houston Foundation for relief

Personal—Prof Carl T Dowell, instructor of chemistry at the University of Texas, Austin, has been elected associate professor of chemistry at Tulane University, New Orleans, and was given a farewell recently by the faculty and students of the University of Texas——Dr William E Spivey, Belton, has been appointed a state quarantine officer with station at Brownsville

State Board of Health Topics—At the recent quarterly meeting of the state board of health infantile paralysis was made a notifiable disease, as provided by the State Sanitary Code It was decided that health certificates be required from persons under 16 years of age desiring to travel from infected points Rules similar to those adopted at the Washington Conference as to the handling of the disease were passed

CANADA

Hospital News—The new Convalescent Hospital for returned soldiers in the old building of Knox College, Toronto, is rapidly drawing to completion and will be opened in another ten days The hospital is furnished with beds and equipment throughout The whole of the furniture has been given by private individuals and societies in Toronto, and the hospital will be one of the best equipped in Canada

More Medical Officers Wanted—The Canadian Army Medical Corps doing duty overseas is in need of more officers to cope with the rapidly increasing work A call has been received in Toronto for more volunteers and until the required number has been received no further drafts into the R A M C will be permitted All offers of medical practitioners who are qualified will be accepted and taken on the strength of the local C A M C unit, and then given as much training as possible Applicants are to apply to the A D M S, Camp Borden, Ont

Personal—Capts Clarence Woods Johnston, C A M C, Manitou, Man, William Jonas McAllister, Calgary, Alta, John Bruce McGregor, Winnipeg, Man, Albert Ross, Blue Mountain, N S, Frederick James Tees, Montreal, Que, and Herbert William Wadge, Winnipeg, Man, all of the same service, have been decorated by the king with the military cross Johnston established a new dressing station under terrific fire, working continuously for three days, and evacuated his wounded with complete success McAllister was very devoted to duty under very heavy shell fire His work at all times is described as splendid McGregor cleared all his casualties under great difficulties and was regardless of personal danger in carrying out his duties Ross continued to dress and attend to the wounded after all dugouts had been blown in, and attended to wounded in open trenches Tees led his bearers to exposed positions under heavy shell and machine gun fire, and evacuated all his wounded Wadge dressed and evacuated wounded for four hours in an advance dressing station under intense bombardment and then succeeded in evacuating all with extreme danger and difficulty——Dr E O Hovey, who is in command of the Grenfell Mission schooner, which in July, 1915, went to the relief of the Donald B MacMillan Arctic Expedition, decided to remain in northern Greenland for a time along with other scientists of the expedition The schooner has returned to Battle Harbor, Labrador——Word has been received in Woodstock, Ont, from Dr Samuel McM McLay, who went to England when the war began for graduate work He accepted a chance to join the R A M C, and has been serving ever since About three weeks ago he returned to England wounded He was working in a dressing station at the front in France when the enemy got range of the station, killing every occupant except Dr McLay Even the man on whom he was working at the time was blown to pieces

GENERAL

Ohio Valley Physicians to Meet—The annual meeting of the Ohio Valley Medical Association will be held in Evansville, Ind, November 15 and 16

Personal—Senate bill 3180, which passed the Senate, August 29, authorizes the appointment of Dr Clarence C Kress to the grade of captain, Medical Corps, U S Army

New Head for Red Cross—Elliot Wadsworth, a lawyer of Boston, was elected vice chairman and executive head of the American Red Cross at a special meeting of the executive committee, August 23

Adventists Advocate Medical Inspection—At the Adventists Camp held in Hastings, Neb, which closed August 30, resolutions recommending medical inspection in all Adventists' schools were adopted

New Rear Admirals—Under the new naval bill two rear admirals will be appointed from the Medical Corps by the president Under seniority these will be Medical Directors William R DuBose and James D Gatewood

Workmen's Compensation Bill Becomes Law—The bill providing compensation for employees of the federal government disabled in the line of duty, and providing medical, surgical, and hospital services and supplies for all such employees injured in the line of duty, whether disabled or not, has been signed by the president and is now a law A synopsis of this bill appeared in The Journal, Sept 2, 1916, p 755

Medical Intern Examination—The United States Civil Service Commission announces an open competitive examination for medical intern for both men and women at various places in the United States, October 4 From the eligibles, certification will be made to fill vacancies in St Elizabeth's Hospital, Washington, D C, at $900 a year and maintenance Persons who desire to take this examination should apply to the United States Civil Service Commission, Washington, D C, for Form 1312, stating the title of the examination

Appeal From Decision of Judge Advocate General—Col Henry P Birmingham, acting surgeon-general of the army, has appealed from the approved opinion of General Crowder that the increase in the Army Medical Corps provided in the national defense act is effective by increments equally distributed over five years Colonel Birmingham argues that this interpretation of the act will furnish a commissioned personnel for the Medical Corps of little above five per thousand instead of seven per thousand, as provided in the act

Missouri Valley Physicians to Meet—The annual meeting of the Medical Society of the Missouri Valley will be held in Omaha, September 21 and 22, under the presidency of Dr John P Lord, Omaha Dr Jabez N Jackson, Kansas City, Mo, will deliver the address in surgery and Dr Walter L Bierring, president of the State Board of Health of Iowa, Des Moines, the address in medicine Headquarters will be at the Hotel Fontenelle Clinics will be held at various Omaha hospitals on the day following the close of the meeting for the benefit of visiting physicians

American Chemists to Meet—The forty-third annual meeting of the American Chemical Society will be held in New York, September 25 to 30, in conjunction with the Second National Expedition of Chemical Industries Headquarters will be at the Chemists' Club, 52 East Forty-First Street, and the hotel headquarters at the Hotel Astor Among the important papers to be presented at this meeting is one by Dr Alice Hamilton, Chicago, chairman of the committee on industrial hygiene of the association, on "Dangers Other Than Accidents in the Manufacture of Explosives"

New Hospital Ship for Navy—A ship built from the keel up for hospital purposes—the very first ship of its kind ever built anywhere—will soon be placed under construction by the navy department Congress has appropriated $2,500,000 for the purpose, and the necessary specifications have been completed by the bureau of construction and repair, with the cooperation of the bureau of medicine and surgery It will accommodate 300 patients in time of peace, with an estimated capacity of 500 under war conditions Every essential detail of a modern hospital is laid down in the plans The ship is to measure 460 feet in length with a beam of 60 feet, and will be furnished with several stabilizers, to reduce the roll to a minimum

Bequests and Donations—The following bequests and donations have recently been announced

Mt Sinai Hospital Montefiore Home for Chronic Invalids, St Vincent s, Presbyterian St Luke s and Roosevelt hospitals, New York each $5,000, by the will of Andrew Freedman

Presbyterian Hospital, Philadelphia, will eventually receive one third of the estate of David M Barrick valued at $70 000

Jefferson Standard Life Insurance Company, Greensboro, N C, a donation of $1 000 toward the erection of a tuberculosis hospital in Guilford County

Missouri Association for the Blind, $50,000 Home for the Friendless, St Louis $25 000 and bequests to the St Louis Children s Hospital and St. Louis Maternity Hospital, by the will of James J Butler, St Louis

Georgia Infirmary Savannah Ga, $1,000, as a memorial to Mrs Harriet L Barnard by the will of James M Barnard

National Board of Medical Examiners—The National Board of Medical Examiners will hold its first examination in Washington, D C, October 16 to 21 On the first day there will be registration of candidates and written examinations in anatomy, chemistry and physics On the second day there will be written examinations in materia medica, pharmacology and therapeutics, oral and laboratory pharmacology, hygiene and its divisions and oral and laboratory hygiene On the third day there will be taken up laboratory and oral chemistry and physics and written examinations in obstetrics and medical jurisprudence The fourth day will be devoted to written examinations in medicine and surgery, and on the fifth day there will be written examinations in pathology and physiology, demonstrations of microscopic and gross pathology and laboratory demonstrations and on the last day, clinical examinations will be held at government hospitals on medicine and surgery Further information may be obtained by inquiry of the secretary, Dr John S Rodman, 2106 Walnut Street, Philadelphia

OUR TROOPS ON THE BORDER

Malaria Mosquitoes in Army Camp—The anopheles has been discovered among the swarms of mosquitoes which recently appeared in the camp of the First Illinois Cavalry at Brownsville One case of malaria is said to have occurred

Paratyphoid Spreads—The paratyphoid epidemic in Texas has spread to other New York troops Two paratyphoid cases are reported in the Second Infantry and one of the two recent deaths in the Seventh Infantry is said to have been due to this cause There are at present said to be fifty men ill with paratyphoid in the Fourteenth Infantry

Refreshment Stations Established—Col Jefferson R Kean, M C, U S Army, director general of military relief of the American Red Cross, commends the establishment by Red Cross chapters of refreshment stations for troops en route and calls attention to the order recently issued returning 21,000 troops to their home station He requests that chapters on the routes of travel inform themselves of the time at which troop trains are expected to arrive and provide refreshment and entertainment for them, as was so successfully done when the troops went south two months ago

Health of Troops—Under this caption the *Army and Navy Journal* discusses editorially the health statistics of the troops of the regular establishment and of the National Guard on the Mexican border It compares the figures of Surgeon-General Sternberg s report from May to September, 1898, with the figures of mortality and morbidity in the present campaign In 1898 there was a strength of 167,168 men, while this year there were 139,222 men in the field, August 5 In the war with Spain there were 1715 deaths, of which 640 were from typhoid fever In the National Guard this year, with a strength of 98,500 men, there were two deaths and a sick rate of 1 14 per cent for the week of August 5 During the same week, the regulars reported six deaths and a sickness percentage of 2 45 for the 40,722 men on the border and in Mexico The report from the Southern department for the week ended August 19 shows a sick rate for the National Guard of 1 17 per cent and three deaths, while the regulars had a sick rate of 2 02 per cent with two deaths This accords with the figures of 1898 which showed a death rate of 3 62 among the National Guard and of 5 83 among the regulars——Dr Thomas Darlington formerly health commissioner of New York, after an inspection of the health conditions in the military camps along the border and in Mexico, reports that the sick rate is low, and states that adequate steps are being taken by the military authorities to safeguard the health of the guardsmen——In a comment by General Pershing, August 22, on the health report, he cites the record of only one case of typhoid fever and of only six deaths among the regulars in a five-month campaign in Mexico as remarkable for an expedition serving in a country like Northern Mexico with nothing but field equipment——There threatened at one time an epidemic of amebic dysentery in a camp in Mexico When the sick rate reached 5 per cent, the chief surgeon and his entire corps were despatched to the camp from headquarters and after a quick and exhaustive study of camp conditions, measures were instituted which soon reduced the sick rate to 1 7 per cent The chief means employed was the chloridation bag devised by Maj William J L Lyster, M C There were at one time 125 cases of the disease in the camp, but this was soon reduced to thirteen

Medical Work on the Border—Col Henry P Birmingham, Acting Surgeon-General, U S Army, on account of circulars issued which have given the impression that the government was not taking adequate care of its troops on the border, has sent the following memorandum to the secretary of war

> The Medical Department has supplied every need and request from the Southern Department In addition to the various small hospitals at minor posts along the border, we have established base hospitals at Fort Sam Houston and Fort Bliss, Texas Base hospitals have also been authorized and are now being completed, supplied with personnel and equipment at Brownsville Eagle Pass, Laredo, Nogales and Fort Crockett The hospital at Fort Crockett is not in process of organization Should it be necessary to establish this hospital it will occupy the building of the post In addition, there are hospitals at Forts Huachuca, Clark McIntosh, Columbus, Camp Douglas Marfa, Del Rio and Deming There are also seven field hospitals with the troops on the border, each with a capacity of 216 beds This does not include the field hospitals of the Organized Militia now on the border Field hospitals, while mobile hospitals, are always available to take care of the sick with troops until they can be evacuated to base hospitals. The government has expended large sums of money constructing new hospitals and increasing the bed capacity of the hospitals already built The Southern Department has at its disposal, in addition to the money already expended on hospitals $300 000 to be used at the discretion of the department commander In addition, the department has organized and is now having completed a hospital train for the transportation of the sick and wounded from the border stations to the base hospitals mentioned above
>
> The army at this time has established general hospitals at the Presidio of San Francisco, with a maximum capacity of 953 beds at the Army and Navy General Hospital, Hot Springs Ark, 600 beds and at Walter Reed General Hospital, Tacoma Park, D C, 320 beds The department has completed plans for the establishment of general hospitals at Fort McPherson Ga Fort Sheridan Ill Fort Douglas Utah Fort Oglethorpe, Ga and Fort Benjamin Harrison, Ind, should conditions warrant These hospitals will have a capacity of from 500 to 1,000 beds Plans have been completed for disinfecting trains in case it is necessary to enter Mexico for the purpose of disinfecting clothing of the soldiers in order that they may be protected against typhus fever All soldiers on the border have been vaccinated against smallpox and typhoid fever Medical supplies are on hand sufficient for the needs of the army now in the field or under orders for the border Attention is invited to the fact that for approximately five years the greater part of the regular army in the United States has been on the Mexican border the health conditions of the troops have at all times been excellent, and they have been and are now free from the usual camp diseases
>
> I believe the best interests of the government can be served by announcing through the press bureau that the government is not at this time in need of such committees as the American Committee for the Maintenance of the Border Hospital Brownsville, Texas, and that appeals such as that filed by Mrs Harriman convey a false impression and tend to create a feeling of insecurity and distrust in the minds of the people of the government s ability to care for its soldiers Contributions such as requested in the letter of Mrs Harriman are absolutely unnecessary and the activities of such organizations should especially at this time, be discouraged by the government

FOREIGN

Pass Medical Supplies for Palestine—The allies have granted permission for the passage through the blockade of medical supplies shipped by New York Jewish societies on the U S S cruiser *Des Moines* for the relief of sufferers in Jerusalem

Physical Education in Spain—Spain is organizing a national conference to promote physical training for young and old, athletics, sports and gymnasium work The first Congreso Nacional de Education Fisica is to be held early next year at Madrid It will be presided over by Professor Ocaña who is one of the life term senators and professor of physiology at the University of Madrid

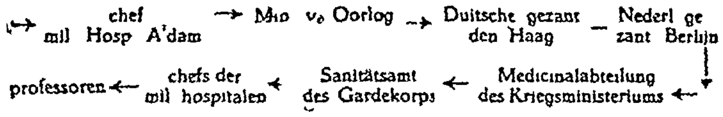
Base Hospital Unit Financed—To finance the complete equipment of an American Red Cross base hospital unit which is being organized by the American Red Cross with a staff from the German Hospital, New York, a contribution of $25,000 has been received from Mr Fritz Achelis The director of this unit will be Dr Frederic Kammerer, who recently returned after active service with the German army

Medical Equipment for Serbia Needed—The Franco-Serbian Field Hospital Committee, of which Helen Hartley Jenkins is chairman, appeals for $30,000 for the complete equipment of a movable hospital of 100 beds which will be manned by an American personnel The Serbian army lost its entire medical equipment in its retreat last fall Subscriptions for this should be sent to Henry B Britton, Treasurer, 17 W Thirtieth Street, New York

Heat Strokes in Mesopotamia—The British Mesopotamian Expeditionary forces have had to contend with intense heat in their work at the head of the Persian gulf At Basra the temperature has ranged from 104 to 109 The treatment of sunstroke and heat apoplexy practiced in Arabia is the intramuscular injection of 20 grains of quinin, as it is believed that the malarial parasite is a potent factor in the causation of heat apoplexy The quinin injection kills the parasite and reduces the fever Three or four pints of cool water, as near the freezing point as possible, are then given as an enema and the patient is packed in crushed ice

Sterilizing the Water of the Tigris—On account of the polluted condition of the water of the Tigris, the expeditionary forces in Arabia have been exposed to many varieties of water-borne diseases, especially typhoid fever, cholera and dysentery The medical staff has employed an effective method of sterilization analogous to that recently used by Maj William J Lyster of the Medical Corps of the Army Water is put into large canvas tanks in which alum is suspended, this causing the settling of the mud Chlorine water is then added in the proportion of 2 fluidounces to 10 gallons of Tigris water and in an hour the water is said to be safely potable

Letter from Berlin—I Zeehandelaar, an officer of the Public Health Service of the Netherlands, recently went to Berlin to make a study of functional neuroses and their treatment, especially with psychotherapy The minister of war of the Netherlands called his attention particularly to this latter subject His report appeared in the *Nederlandsch Tijdschrift voor Geneeskunde*, August 19 He says, "The reflex arc which elicited the desired permission for me to visit the military hospitals at Berlin ran like this"



[*Oorlog* in the language of the Netherlands means "war," *Gezant* means ambassador] The way thus provided for him was so smooth that, he states, even his luggage was not examined at the frontier, and he regretted not having brought double his supply of cigars At the Berlin hospitals he was warned that he must not speak to any soldiers on any subject connected with military matters He says of his visit to the psychopathic ward of the Moabit penitentiary, "It was light and airy and looked out on some sunflowers although this institution is an old and lugubrious building Sunflowers are profusely cultivated in Germany now for the oil from the seeds There were many Poles and Russians among the psychopaths here Some of the men had 'prison edema' Without kidney or heart disease, they have edema in the legs when they stand, owing to the unfavorable conditions of their life Some of the men complained of being hungry They do not get enough to eat The food in the prison is entirely different from what it was before the scarcity The supply of bread and potatoes is so much less that they are really hungry They get other articles, such as marmelade, beer, fruit, etc, which they never had had before, but this does not content the men The lack of all fat is what makes the hunger sensation so strong Leppmann, still chief of the psychopathic ward as before the war, does the best he can, but cannot do much He combines the strict firmness with the kindliness which is indispensable in a position of this kind One of the convicts had symptoms suggesting gastric ulcer, and he asked for consultation with a university specialist, which was in fact granted The man can pay the consultant personally

VOGT'S INSTITUTE

"O Vogt and his neurobiologic institute are still housed in the old building where he has over a million specimens of brain tissue He distinguishes 200 different fields in the cortex Vogt told me that psychotherapy is not applicable to most of the soldiers who have been on active service, as their fear of being sent back to the front counteracts the effect of psychotherapy

WAR PSYCHONEUROSES

"In this special field of the nonorganic nervous affections and psychoneuroses, which are so extraordinarily multiple in this war, Lewandowsky informed me that he regards them as exclusively psychic Oppenheim's theory of 'molecular concussion' finds in him its greatest opponent He does not apply treatment to this great mass of functional nervous affections All that hysteria can produce in the way of deafness, dumbness, paralysis, tremor, contracture, etc, I saw in long series in his service The men lie around without getting any special treatment The stay in the hospital is made as little agreeable for them as possible No or very few visits from the family and acquaintances are allowed The motto is 'Just wait and have patience and everything will go away of itself' Sometimes this system succeeds, and sometimes not When it fails and the man is declared unfit for further service, he is sent to his home as speedily as possible He is reexamined a year later and may then be found fit for army duty Lewandowsky has a high opinion of psychotherapy provided it is associated with occupation therapy and strict discipline in a suitable environment But he does not think it can be applied in the ordinary hospital Among the interesting cases was one of traumatic rigidity of the pupil after a blow in the face Lewandowsky has seen other cases of this kind An organic affection of the brain or spinal cord was out of the question in these cases Leppmann also denounced the idea of attempting to apply psychotherapy in an ordinary military hospital, even in a special ward By the time the men reach Berlin the hysteric phenomena are firmly established

"To my question how epileptics get along in the war, Leppmann replied that epilepsy had not made itself noticeable during the war and, so far as he could judge, the seizures did not occur any more frequently Sexual perversity did not seem to have increased The psychoneuroses are not caused by the war, but their development is hastened in the predisposed and the manifestations of an inherited taint are more pronounced Almost invariably it is possible to detect the predisposition in all such cases Both Leppmann's and Lewandowsky's clinics are in the sixty-year old military hospital A new building had been planned but the war interfered with its construction The reason why it looks so extremely dingy is that there is no oil to paint it with

OPPENHEIM'S SERVICE

"The clinic where Oppenheim displays his great talents and experience as a neurologist is installed in the magnificent structure, the home of the Museum of Arts and Crafts The whole building is temporarily at his disposal and the clinics of his staff are also installed there, Kalischer, Flatau and others Oppenheim's aid is frequently called on by the military authorities, and yet he finds time to study each patient and give a brief but clear insight into the case Particularly interesting to me was the close cooperation of the neurologist and the surgeon A whole group of cases were presented to the surgeon (Borchardt) and the two studied them together, even when it was not a question of an operation The discussions were always right to the point No one had time to waste on explanations These cases were of wounds of peripheral nerves, plexuses, spine and skull Neurolysis and other operations on the trunk nerves often improved function materially One man shot through the cauda equina, completely paralyzed in the legs and bladder, was so improved by removal of splinters of bone that he now can run The intimate cooperation of neurologist, surgeon, roentgenologist and serologist was truly remarkable Not one but several roentgenographs are found in the reports of cases The Wassermann reaction and lumbar puncture findings are recorded in a special register for each case, with an arrangement for ready reference A medically trained secretary accompanies Oppenheim to every patient and records not only most fully all the objective findings but also the patient's complaints There were numbers of neuroses in his service Treatment was with electricity, psychotherapy and hypnosis I noticed that the nervous patients were given a bottle of beer Hysteric phenomena were frequently grafted on organic affections One man with a history of old syphilis presented symptoms of tabes With closed eyes and feet together he fell, but not as with the true Romberg He would have fallen like a block of wood if we had not caught him Oppenheim said at once that this was hysteria, and held a bottle of valerian under the man's nose and asked him what it was He started to open his eyes to look, but Oppenheim pressed on the eyelids and told him to smell without looking His attention thus diverted, the man stood quietly for several seconds smelling at the bottle with his eyes closed and feet together

'Lewandowsky avoids testing the sensibility of the skin with psychogenic neuroses, saying that the physician always suggests the findings here No attempt at isolation was made at Oppenheim's clinic for the functional nervous affections The treatment here does not seem rational or just They are treated either with rigorous strictness or great mildness It is difficult to know where the unconscious or intentional aggravation of the condition in these soldiers begins The dread of being sent back to the front is also an important factor in the outcome Treatment of hysteric deafness is peculiarly long and difficult to accomplish results, as no really good method of treatment seems to be known there My method of treating it was received with great interest

THE SCHÖNOW NEUROLOGIC SANATORIUM

"The Schonow institution, Laehr's realization of the ideal of a free sanatorium for neurologic cases, lies in fields and woods with ample equipment Henneberg is in charge of the neurologic department, and the psychoneuroses are here also in large numbers He does not expect much from psychotherapy for soldiers who have been at the front The men have no wish to recover, and be sent back He spoke with some bitterness of all these psychoneuroses, asking 'Did you ever see a hysteric with both arms paralyzed, or ever with the right arm paralyzed?' He has had two cases of psychogenic paralysis of the left arm 'Have you ever seen one that let himself get soiled with feces?' He does not attempt to give them special treatment, and I became convinced from what I saw in Berlin that these victims of an inherited taint plus the emotions of the war do better when they are kept with the mildly wounded and are not isolated or segregated At the earliest possible moment send them to their homes if at all suitable Men with attacks of arrhythmia and tachycardia are given the needed repose in the Schonow sanatorium It is equipped with everything for hydrotherapy and for training the men in various trades and in agriculture I was present at the inoculation of a number of men against typhoid and cholera, which is repeated every six months The heart neuroses are differentiated from organic trouble by E Weber's method The volume of the arm is registered with a plethysmograph before and while the foot is swung vigorously to and fro for fifteen seconds Weber says that the curve then shows at a glance whether the heart is sound or not

BERLIN'S FOOD SUPPLY

"In order to determine for myself whether the populace of Berlin is undernourished, I went to a free bathing place where men, women and children lie around on the sand in bathing suits I was there for several hours on two days, and thus I saw many dozens of Berlin's people very nearly naked, and I was soon convinced that there can be no question of undernourishment there I wish that my Amsterdam city patients only looked as well nourished The food supply is poorest at Berlin on account of the crowded populace and the difficulty of equitable distribution The Berliners have to do without much, but there is no real hunger I took meals at all kinds of places, good and cheap restaurants The food costs more than it used to but there is enough and the poor are looked after especially The most critical months are past as the fine harvest is at hand The people eat less than they used to, but they have adapted themselves to this They drink their coffee without sugar, eat their potatoes without gravy, spread their bread very thin with butter or use jam instead, eat no meat on certain days in the week, and they have lost their protuberant abdomens, but they are very far from starving

USE OF HIGH FREQUENCY APPARATUS

'I also visited the 'High Frequency Promenade Hall' It is fitted up with high frequency apparatus so that the hall forms a high frequency alternating field like that on a small scale in the solenoid The electricity is so strong that touching with the finger elicits a powerful spark The institution is fathered by an engineer and backed by considerable capital It is designed for treatment of deranged metabolism of all kinds accompanied by high blood pressure and nervous troubles I myself know too little about the high frequency current to ever advise a patient of mine to go into an atmosphere so heavily laden with electric currents It is proposed to erect such institutions in different cities, after the model of the one in Berlin, the first in the world"

MEDICAL PRISONERS OF WAR

In conclusion Zeehandelaar relates that he tried to investigate the truth of the rumor that Germany is detaining so many medical men and members of the nursing force belonging to the entente allies He applied to the state department of foreign affairs and was given a permit to visit a prisoners' camp and talk with the medical men there, but did not have time to do so He says of this, "At the state department I was told that it was a reprisals measure The French and the Russians began this detaining of the medical men Then Germany did the same At the same time the official admitted that this holding prisoners the physicians and nursing force conflicts with the Geneva convention I was told, moreover, that within a few weeks, an agreement is to be made with Russia and France whereby all directly connected with the medical service will be released except for a small percentage who are absolutely required for medical care of their own countrymen Naturally only Russian physicians can be used for the different camps of Russian prisoners This percentage to be detained is to be small and the same for each nation Hence the larger proportion of our confreres now in prison camps are facing better times"

PARIS LETTER

Paris, Aug 17, 1916

The War

A NEW SCHOOL FOR THE REEDUCATION OF CRIPPLES

Mr Godart, undersecretary of state for the sanitary service of the army, has recently inaugurated at the Maison Blanche of Neuilly-sur-Marne, a new institution for physical reeducation This has been organized by the union of foreign colonies in France for the benefit of victims of the war (The Journal, July 22, 1916, p 297) The Maison Blanche is more particularly intended for those who have lost arms or legs The creation of this school has been rendered possible by the liberality of Mr Edward Stotesbury of Philadelphia, who in response to the appeal of Mme Baylies of the New York committee, immediately placed at the disposition of the work about half a million francs ($96,500), while the New York American committee was, on its part, able to collect more than 1,000,000 francs ($193,000) The government furnishes the first artificial limbs for the cripples, but the upkeep of the institution is at the expense of the union of foreign colonies, which has made of it a model institution endowed with all modern conveniences and comforts, the most perfect equipment, and the most ingenious apparatus permitting the cripples to exercise various trades, even to cultivating their artistic talents This school of physical reeducation is divided into two sections In the one, French, English, accountancy, stenography, etc, are taught The other is devoted to manual work and has workshops for fitting of joinery, cabinet making, shoemaking, tailoring, harness making, saddle making, basket work and tinsmith's work The founders of this institution attach especial importance to its moral influence as much as to the physical reeducation of the cripples The majority of these men return from the war depressed, discouraged by the loss of their limbs, anxious about the future, and with the feeling that the pension which they will receive will not suffice It is, therefore, necessary to console them, to reassure them and to bring back their taste for life, their love of work, and their confidence in themselves and in the future.

THE FRENCH HOSPITAL IN ITALY

A year ago, I mentioned the establishment at Milan of the French hospital The French colony in Rome has followed this example by installing a hospital for the Italian wounded These, however are not the only works of benevolence created by the French in Italy Many French families living in this country have offered their services to the works of assistance or benevolence in favor of victims of the war Thus at the entrance of a small village of Seravezza, situated in Spezia on the shoulder of Mount Carrara, the French flag floats over a large establishment. This is a hospital of fifty beds equipped with all modern conveniences, which was established and has been maintained completely by the Henraux family, a French family installed for many generations in this region of marble quarries

A SCHOOL OF CLOCK MAKING FOR CRIPPLES

Mr Justin Godart, undersecretary of state for the military, sanitary service of the army presided at the inauguration of a school of clock making at Cluses (department of Haute-Savoie) where forty-five men who have lost their legs will be taught the trade of clock making

A LIBRARY FOR THE BLIND

It is estimated that there are about 35,000 blind persons in France, of whom a considerable number owe their affliction to war wounds For these unfortunates, reading is one of the few consolations left Unfortunately, there are very few works in Braille type We have two libraries in Paris and one in Lyons containing altogether 40,000 volumes This does not amount to very much, because the ordinary book of 300 pages, when printed in Braille type, occupies four or five volumes It has been decided to complete this library At present, the preparation of a dictionary for the blind has been undertaken This will be extremely succinct, each word being followed by only one word of explanation This work of condensation is being carried out under the direction of the celebrated writer Anatole France, by a young man of letters, Guy-Robert de Costal When the text is prepared, the work will be set up and printed on the Ernest Vaughan press This is a very ingenious invention (The Journal, Sept 17, 1910, p 1036) It is intended for the composing and printing of Braille type, and it is so constructed that persons who are not typographers by profession can use it In this way, those who have time at their disposal may employ it by composing and printing Braille type plates and thus contributing to the formation of the library for the blind

DEATH OF PROFESSOR A CHARPENTIER

Dr A Charpentier, professor of medical physics at the Faculté de medecine de Nancy, has died suddenly in his sixty-fifth year Since 1888, he was a correspondent member of the Académie de medecine

DIAGNOSIS OF PULMONARY TUBERCULOSIS IN SOLDIERS

At one of the last sessions of the Société medicale des hôpitaux de Paris, Dr Emile Sergent, hospital physician, presented a communication on the differential diagnosis of pulmonary tuberculosis in which he insisted on the fact that this diagnosis should be made only when an examination completely demonstrates the existence of the disease, and permits of eliminating the commonest causes of error Among the latter considerable place must be given to lesions and obstructions of the upper air passages and in particular of the nose and of the nasopharynx It is certain that among the subjects suspected of consumption many are not tuberculous Sergent is convinced that fewer men would have been discharged as tuberculous if the order for discharge had not been made until the patient had passed some time under observation Dr LeGenre, hospital physician, who is especially charged with the sorting out of tuberculous soldiers, brought forward observations which concorded perfectly with those of Sergent There can be no doubt that, on the discharge sheets of soldiers, the word "hemoptysis" is somewhat abusively employed For the diagnosis of tuberculosis one should not content one's self with a single symptom, such as hemoptysis, but should depend on a careful confrontation of the results furnished by the numerous diagnostic procedures at our disposal

The Societe medicale des hopitaux passed a resolution recommending that all soldiers suspected of tuberculosis or subject to cough should be examined and reported on by specialists, for which purpose they should be detained in special hospitals for the necessary time

THE ANATOMIC EXCURSIONS OF A BULLET

At the Reunion medico-chirurgicale de la 1-ere armee, Dr Grandgerard communicated an interesting case of a shrapnel bullet which had entered through the left supraclavicular fossa and, by roentgenoscopy, was found in the right auricle One hour after the examination, the patient having got up, the ball was found again in the triangle of Scarpa in the track of the femoral vessel, and then, after a few minutes of lying on his back, opposite the right sacroiliac symphysis at the level of the iliac vessels At operation the projectile was found in the internal iliac vein, where the operator fixed it by a proximal ligature

LONDON LETTER

London, Aug 28, 1916

The War

THE TRAINING OF THE DISABLED FIGHTERS

The problem of the soldier disabled from fighting by some mutilation or disease but capable of being trained for some civil occupation is engaging the consideration of the authorities It is realized that it is not sufficient to simply discharge the man from the army with a pension and an artificial substitute for any part which may have been lost Establishments for the training of such men in some civil occupation have been formed Of these the most important is the so-called "Command Depot" at Tipperary, Ireland, established under the direction of Prof Sims Woodhead of Cambridge Massage, electric treatment and drill of various kinds are given There are handicraft schools in which the men are trained in crafts suitable to their abilities Damaged men are trained in motor driving and in ordinary road repair work The theory of the motor engine is being taught in order that they may be able to apply knowledge of it to farm work in which motor engines are coming into use Other branches of industry, French polishing, electric fitting, and typewriting are also being taught As a result of experience gained here the local executive committee has decided to equip and maintain a special institute in which discharged soldiers may attend classes organized for the men in the depot

THE PRICES OF FOOD DURING THE WAR

For the first time during the war a decrease, though only slight, in the general level of the prices of food is announced This occurred in July and was mainly owing to the decline in the price of potatoes though there was also a general reduction in the price of cheese Imported meat was a little cheaper on August 1 than a month earlier The average percentage increase on retail prices in July, 1914, at the beginning of each month since the beginning of the war is as follows

	Per Cent		Per Cent
September, 1914	10	October, 1915	35
January, 1915	12	January, 1916	45
April, 1915	24	April, 1916	49
July, 1915	32½	July, 1916	61
		August, 1916	60

These figures relate to food only It may be estimated that the average increase in the cost of living of the working classes, taking food, rent, clothing, fuel, and light and miscellaneous expediture into consideration, between July, 1914, and the present time, is between 40 and 45 per cent, disregarding increased taxation and assuming that the standard of living has not been modified in view of war conditions

THE EFFECT OF WAR ON INSANITY

The annual report of Dr William Graham, resident medical superintendent of Belfast District Asylum, and one of the best known alienists in Ireland contains some remarkable conclusions as to the effect of war on insanity and mental disorder The number of admissions to the asylum during the past year shows a marked diminution as compared with the average for the past ten years, and the interesting, and at first sight paradoxic, fact is that this diminution takes place at a time when we are involved in the greatest war in the history of the world It has become a commonplace since August, 1914, to say that the world is growing mad, and there is a widespread, popular notion that the distress and agony of a conflict so terrible as the present one must end in profound psychic disturbance and alienation Yet the fact is indisputable that insanity, like crime has lessened during the period of the war It will not do to say that the vast number of men called to the colors include some who might otherwise be reckoned among our asylum population, for the greatest reduction is among women, 119 being admitted in 1915 against 154 in 1913 The future is equally encouraging The problem of the probable influence of the war on the mental life of the nation and on insanity is not an isolated one It is implicated in the general economic, sciologic, and physical state of the community at a given time There are grounds for hope that especially, though not exclusively, among women we shall find a great diminution in those neurotic disorders that form part of mental abnormality Thousands of men who have gone or are preparing to go to the front have all their life been subject to the bondage of neurasthenic weakness and incapacity or of psychasthenic fears or hypochrondriac fancies They have never known what it is to live The physical regimen under which these men are compelled to live can have nothing but the best effect on those subjected to its discipline Especially significant is the change coming over the lives of the women of the middle classes These sheltered daughters of the merchant or of the professional man are now falling into line with their sisters of the upper and humbler social ranks Idleness and ennui have lost their hold, healthy and unselfish activity is now the prevailing fashion The war has enfranchised women Among the mighty sociologic forces which the present world conflict has set in motion not the least will be the new value set on all sorts of good work and the new dignity which will crown the workers With the ever-widening circle of women's interests a new barrier against mental disorder has been erected War is the destruction of culture, art, education—the finest fruits of humanity But the human mind has the strange power of wringing out of the worst evils some great and far-reaching good

THE DEMAND FOR PHYSICIANS FOR THE WAR

The Local Government Board has addressed a circular to county and metropolitan borough councils, sanitary authorities, joint hospital boards and committees and joint committees for appointing health officers, stating that it has become necessary to make provisional arrangements for enabling every physician of suitable age (45 and under) who can be spared from civil employment without serious injury to the civil population to place himself at the disposal of the authorities and to be prepared, if required to take a commission in the army or navy in the near future Authorities are accordingly requested to make a return of physicians of military age (1) who could be spared almost at once, (2) who might be spared later, and (3) who cannot be spared

WHOLE CEREALS AS FOOD

Advocating the use of whole cereals as food in war time, Sir James Crichton-Browne, at a conference held by the Bread and Food Reform League, said that to some extent he was there as "a patriotic Scotsman" in defence of oatmeal He believes it is the most nutritious of the cereals and certainly the most economical Probably the people are better fed now in war time than in any previous period, but it is evident that cheaper foods will be required to take the place of beef eggs and milk Whole cereals will supply the necessary requirements but it is essential that they shall not be robbed of their principal constituents Good digestion does not rest on appetite but on mastication, and the prevalence of dental decay might be traced to the use of soft foods He suggests that in munition canteens whole cereal foods ought to be provided, and he understands that the subject is now under consideration by the government.

Dr Saleeby moved a resolution urging government attention to the importance of utilizing during war time whole cereals, especially whole wheat meal whole wheat flour, oatmeal, unpearled barley, and unpolished rice The greatest waste in the country he said, is in regard to our use of wheat and coal and it is true economy to attempt to get full value out of both

Marriages

William W Perdue, M D, Mobile, Ala, to Miss Eleanor C Bartlett of Chicago, in New York City, September 5

Judson M Meyers M D Superior Wis, to Miss Jeanette Carlson of Spooner Wis, in Duluth Minn, August 26

Ernest Morrison Ewers, M D, Louisville Ky, to Miss Ruth A Schoefer of Pierceton Ind, August 29

Ivan Charles Jackson M D Portland, Ore, to Miss Lola Heskett of Enterprise Ore, June 14 1915

Hugo Friedstein M D, Kansas City, Mo, to Miss Helen Seelenfreund of Chicago September 11

Allen Hamilton Bunce, M D, Atlanta, Ga, to Miss Lena River of Worcester, Mass, August 28

Lewis Hasbrook Kemble M D, Glendale Colo, to Miss Virginia Lowe of Denver, August 28

Martin Henry Merbitz, M D, Chicago to Miss Norma Helen Irasek of Milwaukee May 17

Benjamin Newhouse M D., to Miss Esther Raum, both of Washington D C September 10

Walter Ivan Lillie, M D Flint, Mich, to Miss Opal Jones of St Johns Mich, August 30

Grove Harkness, M D to Miss Florence Trumpf, both of Waukesha, Wis August 15

Deaths

Surg Rudolph H von Ezdorf, U S P H S, aged 43, in charge of the marine hospital at New Orleans, who was recently ordered to special duty at Lincolnton, N C, died in that place, September 8, it is believed from heart disease Dr von Ezdorf was a native of Pennsylvania, was graduated from the Columbian University, Washington, D C (now the George Washington University), in 1894 He entered the Public Health Service as assistant surgeon, March 2, 1898, was made passed assistant surgeon, Feb 28, 1903 and was promoted to surgeon, Oct 1, 1912 During the United States intervention in Cuba, Dr von Ezdorf served as quarantine officer in Santiago and later was quarantine officer of the Isthmian Canal Commission at Cristobal and Colon He was also on duty with the United States forces when they occupied Vera Cruz, Mexico, in 1914 From 1907 to 1910 he was in charge of the Quarantine Station at New Orleans, and in 1911, during the threatened invasion of the United States by cholera he was quarantine officer of the port of New York Dr von Ezdorf was a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States By reason of his long residence in summer climates and his special study and research regarding yellow fever and malaria he was esteemed an expert in these diseases, and his death is a distinct loss to the Public Health Service and to sanitary science

George Jameson Cook, M D, Indianapolis, Kentucky School of Medicine, Louisville, 1866, aged 72, a Fellow of the American Medical Association, professor of gastro-intestinal surgery in Indiana University School of Medicine, Indianapolis, for more than thirty years, once president of the Indiana State Medical Association and Indianapolis Medical Society, for twenty years business manager of the Indiana Medical Journal, a pioneer specialist in the field of gastro-intestinal surgery and a physician greatly esteemed and much beloved, died at his home, August 31, from heart disease

John Wesley Ward, M D, Pennington, N J, University of Pennsylvania, Philadelphia, 1866, aged 76, formerly a Fellow of the American Medical Association, an honorary member and president in 1890 of the Medical Society of New Jersey, a member of the staff since 1866 and superintendent for more than thirty years of the New Jersey State Hospital Trenton, died at his home, August 24

William Hall Brace Pratt, M D, Brooklyn, College of Physicians and Surgeons in the City of New York, 1867, aged 73, a Fellow of the American Medical Association, consulting physician and a member of the board of managers of the Methodist-Episcopal Hospital, Brooklyn, for forty-five years a practitioner of that city, died at his home, August 27, from arteriosclerosis

John A Fritchey, M D, Harrisburg Pa, University of Pennsylvania, Philadelphia, 1879, aged 58, three times mayor of Harrisburg, for many years surgeon for the Pennsylvania System and Northern Central Railroad, and assistant surgeon of the Governor's Troop, N G, Pa, died in the Presbyterian Hospital, Philadelphia, from disease of the liver, August 25

Ozias Willard Peck, M D, Oneonta, N Y, Yale University New Haven, Conn, 1857, aged 81, a member of the Medical Society of the State of New York, surgeon in the army during the Civil War, for twenty-six years health officer of Oneonta and consulting physician to the Aurelia Osborne Fox Memorial Hospital, died at his home, August 4

Edward Meggenhofen, M D., Chillicothe Ohio, Kentucky School of Medicine, Louisville 1893, aged 59, a Fellow of the American Medical Association and for many years a practitioner and druggist of Chillicothe, was instantly killed, August 23, when his automobile slipped from the towpath road into the bed of an empty canal near Chillicothe

William Thackery Cathell, M D., Baltimore, College of Physicians and Surgeons Baltimore, 1886, aged 52, a member of the Medical and Chirurgical Faculty of Maryland and a specialist on diseases of the nose and throat, demonstrator of anatomy in Baltimore Medical College, died in the Hotel Emerson, Baltimore, August 24, from nephritis

Warren Fisher Gay, M D, Boston, Harvard Medical School, 1893, aged 50, a Fellow of the American Medical Association, a well known surgeon of Boston and at various times on the staff of the Boston Dispensary, Carney, St Elizabeth's, Massachusetts General, and Massachusetts Women's hospitals, died at his home, August 26

James Henry McLaughlin, M D, Sutter Creek, Calif , Kentucky School of Medicine, Louisville, 1891, aged 54, a member of the Medical Society of the State of California, who had been ill for many years with diabetes, died in the Dameron Hospital, Stockton, Calif, August 20, from cerebral embolism

William Rutledge Hudson, M D, Huntington, W Va , Johns Hopkins University, Baltimore, 1911, aged 32, a Fellow of the American Medical Association, while endeavoring to save his brother-in-law and brother from drowning in the Shenandoah River at Luray, Va, July 23, was accidentally drowned

Earl Curtiss Peck, M D, Philadelphia, Jefferson Medical College, 1914, aged 25, first assistant resident physician in the Philadelphia Municipal Hospital, Germantown, formerly of Newton, Mass , died in the Municipal Hospital, September 5, from anterior poliomyelitis

Howard S Justice, M D, Hutchinson, Kan , College of Physicians and Surgeons, Keokuk, Iowa, 1865, aged 79, formerly a Fellow of the American Medical Association, for more than fifty years a practitioner of Missouri and Kansas, died at his home, August 25

William George Brede, M D, Minneapolis, University of Minnesota, Minneapolis, 1906, aged 40, formerly a Fellow of the American Medical Association, a member of the Minnesota State Medical Association, died at his home, September 5, from septic pneumonia

Robert G Witherspoon, Anderson, S C (license, South Carolina, years of practice), aged 70, formerly a member of the South Carolina Medical Association, a practitioner since 1875, died at his home, June 9, from chronic bronchitis

Thomas T Matlock, M D, Dalark, Ark , Beaumont Hospital Medical College, St Louis, 1900, aged 41, is said to have shot and fatally wounded his wife and then to have committed suicide, August 21

Marcus Francis Brown, M D, Billings, Mont , College of Physicians and Surgeons, Chicago, 1908, aged 35, a member of the Medical Association of Montana, died at his home, August 28, from neuritis

S P Watson, M D, Loris, S C , College of Physicians and Surgeons, Baltimore, 1884, aged 54, formerly a member of the South Carolina Medical Association, died at his home, August 14

Tyner Emanuel Lowe, M D, Greenfield, Ind , Homeopathic Medical College of Missouri, St Louis, 1908, aged 39, died at the home of his parents in Indianapolis, August 26, from carcinoma

James S Knott, Dallas, Texas (license, Texas, Eleventh Judicial District Board, 1879) , aged 72, a practitioner for nearly half a century , died at his home, May 31, from uremia

Josias Edgar Jones, M D, Digby, N S , Harvard Medical School, 1858, aged 78, died suddenly from heart disease, while on a fishing trip in Nova Scotia, May 18

Martin Giesy, M D, Aurora, Ore , Willamette University, Salem, Ore, 1868, aged 83, a pioneer practitioner and druggist of the state, died at his home, August 22

Rudolph Goldstein, M D, Tampa, Fla , University of Louisville, Ky , 1894, aged 59, is reported to have committed suicide in his room in Tampa, May 2

William McKelvey, M D, Denver, University of Pennsylvania, Philadelphia, 1875, aged 64, died at his home, July 13, from perforating gastric ulcer

M J Newberry, M D, Lizella, Ga , Atlanta (Ga) Medical College, 1886, aged 54, died at his home, August 27, from cerebral hemorrhage

La Fayette Cate, M D, Adin, Calif , Vermont Medical College, Woodstock, 1852, aged 86, died at his home, August 25, from heart disease

Winfield S Makemson, M D, Rio Vista, Calif , Medical College of Ohio, Cincinnati, 1884, died in Rio Vista, August 24

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SULFURYL MONAL

Report of the Council on Pharmacy and Chemistry

Sulfuryl Monal is said to be manufactured by Monal Freres, manufacturing chemists of Nancy, France It is sold in the United States by George J Wallau, Inc , New York City According to the label

"Each Pastille { Contains Sulfuryl (combined polysulphurets) = 0 35 centigr"
Liberates Nascent sulphuretted Hydrogen = 2 cub cent"

The Chemical Laboratory of the American Medical Association was requested to check the amount of available hydrogen sulphid An original bottle of Sulfuryl Monal was used, this contained tablets having the taste of licorice extract and an odor of hydrogen sulphid The tablets were found to liberate about 6 c c hydrogen sulphid to each tablet.

Among the claims made for the preparation are

> 'Dissolved by the saliva, Sulfuryl Monal reaches the stomach where, under the influence of the gastric juice, it generates nascent sulphuretted hydrogen Professor Albert Robin's remarkable researches have proven that it is in the nascent state that drugs produce the greatest effect with the smallest dose Being thus eliminated by the entire respiratory tract the lungs, bronchi and the throat, the sulphuretted hydrogen passes from the interior to the exterior, that is to say, goes right through these organs which are, as a consequence, thoroughly cleansed, antisepticized and freed of the pathogenic microorganisms Then again, part of the sulphuretted hydrogen, liberated in the stomach, is eliminated by the mouth and acts as an antiseptic and disinfectant of the mucous membranes of the throat and mouth Hence Sulfuryl Monal is a perfect protective agent against contagious diseases Numerous clinical tests have demonstrated its real efficacy in diseases of the throat and of the respiratory tract laryngitis, pharyngitis, hoarseness, granulations, tonsillitis, colds, bronchitis pulmonary catarrh, asthma, emphysema, grippe, whooping cough, simple and infectious pneumonia, and in the first stage of pulmonary tuberculosis "

The sulphids are practically ignored in modern textbooks There is a rather extensive clinical literature on the subject, particularly in connection with sulphur waters, this, however, offers no good evidence for the therapeutic value of sulphids Probably the tradition in their favor is largely due to the old popular idea that a disagreeable taste or odor is a mark of a good remedy[1]

When hydrogen sulphid is introduced into the body, the small amounts that appear in the expired air are insufficient for quantitative demonstration and it is highly improbable that the amount thus excreted has any germicidal action, or that enough is excreted in the lungs to cause irritation and a reaction The claim that Sulfuryl Monal is "a perfect protective agent against contagious diseases" is unwarranted, the recommendation for its use in "simple and infectious pneumonia, and in the first stage of pulmonary tuberculosis" is dangerous and vicious The Council declared Sulfuryl Monal ineligible for New and Nonofficial Remedies and authorized publication of this report

[Editorial Note —With one exception, this product does not appear to be advertised in medical journals We find, however, in the gallery of nostrums that grace the advertising pages of the *International Journal of Surgery*, that Sulfuryl Monal has its place According to an advertisement that has been running some months in this publication, "affections of the throat and respiratory organs respond promptly" to Sulfuryl Monal whose "effects are rapid and certain" even in "incipient tuberculosis " This preposterous pronouncement is no worse than many others appearing in the same journal, but it is bad enough to indicate how uncritical must be the physicians who support—by subscription or contribution—publications that are still debasing scientific medicine]

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[1] Liquid Sulphur — Sulphume The Journal A M A , Dec. 2, 1911 p 1853

BI-TARIDE TABLETS

Report of the Council on Pharmacy and Chemistry

Bi-Taride Tablets, dark-brown tablets with a strong tarry odor, were submitted to the Council by the Germicidal Products Corporation, New York According to information furnished

> "The tablet is a mixture and contains as active principle (25%) of the aromatic series of coal tar with the group formula $C_nH_{2n-7}(OH)$ Cane Sugar Sugar of Milk Boric Acid etc, sufficient to ensure a soluble and stable tablet "

The identity of the "active principle (25 per cent) of the aromatic series of coal tar with the group formula C_nH_{2n-7} (OH)" is not declared, neither is the amount of boric acid stated, while the "*et cetera*" suggests the presence of other medicinal constituents, which are not named In the letter of submission the phenol coefficient was given as 1 4 and the toxicity as 4 per cent Enclosed with this letter, however, was a report which showed the toxicity to be 15 per cent as compared with phenol

The bottle containing the tablets has the name "Bi-Taride" blown in the glass while the carton containing the bottle bears the following recommendations

> "For fresh wounds cuts burns, bruises boils, carbuncles, ulcers erysipelas, gangrene diseases of the scalp vermin and in cases of infection and suppuration destroys all germs of contageous and infectious diseases"
>
> Vaginal Douche, Useful in Leucorrhoea and other female disorders allays inflammation, prevents contagion '

Reliance on a germicidal preparation in such affections as erysipelas, gangrene and leukorrhea is likely to lead to harm, and advice to this end is pernicious The Council voted that Bi-Taride Tablets be held ineligible for New and Nonofficial Remedies in that the composition [of the tablets] is essentially secret (Rule 1), in that the recommendations for their use constitute therapeutic exaggeration and an invitation to the public to depend on them in contagious and other serious diseases (Rules 6 and 4) and in that the combination of coal-tar derivatives with "Boric Acid, etc," is irrational After submission of this report to the Germicidal Products Corporation the Council authorized its publication.

GLYCO-THYMOLINE AND POLIOMYELITIS

One characteristic of the "patent medicine" business is that it trades on fear Should an epidemic occur the market is flooded with new nostrums purporting to cure or prevent the disease in question, while the manufacturers of older "patent medicines' revamp their advertising so as to make it appear that their preparations are all that stand between the scourge and the public One has but to remember "Peruna's" exploitation of the yellow fever epidemic in New Orleans some years ago and the way in which the exploiters of "Pond s Extract" played on the fears of the public at the time of the former meningitis epidemic in New York City

At present the public is much exercised over the epidemic of infantile paralysis Anticipating that the nostrum fraternity would attempt to reap a golden harvest from the public distress, the federal officials issued a bulletin of warning on the subject. Naturally, the bulletin was addressed to the lay public, the government assuming that physicians knew enough to avoid being misled by any such advertising campaigns Apparently, the assumption is too broad At any rate, the manufacturers of 'Glyco-Thymoline" are circularizing physicians one of whom writes as follows

> *To the Editor* —I am enclosing circular letter that I received this morning which seems to me almost a crime I do not suppose that there is any way to prevent anything of this sort but it is certainly a shame to attempt to deceive people in this way As I recollect Glyco Thymoline is almost inert practically no more efficient than Dobell s solution
>
> E Fletcher Ingals M D, Chicago

The circular letter referred to was on the stationery of Kress & Owen Company, manufacturers of Glyco-Thymoline It read

> *Dear Doctor*—Regarding Infantile Paralysis it is conceded that the source of infection is through the Nose Mouth and Throat.
>
> Taking this to be correct, we believe that there is no safer prophylactic measure than the use of Glyco Thymoline, with three parts of water as a mouth, tooth and nasal wash, by means of the K & O Nasal Douche and the toothbrush
>
> Glyco Thymoline tends to promote exosmosis, and prevents the absorption of the germ or toxic matter
>
> We would be very glad to send you samples of both Glyco Thymoline and the Douche should you so desire
>
> With best wishes, we beg to remain,
>
> Yours very truly,
>
> Kress & Owen Company

Glyco-Thymoline has been discussed in these pages A report[1] of the Council on Pharmacy and Chemistry pointed out that this "patent medicine" is simply a weak antiseptic, so feeble that even in full strength it does not kill *Staphylococcus aureus* in four hours and is of little if any greater therapeutic value than sterile salt solution Yet, Glyco-Thymoline has been recommended by its manufacturers, either directly or inferentially, for such diseases as diphtheria, ophthalmia neonatorum, consumption, etc Today its manufacturers put it forward as one of the safest prophylactic measures against infantile paralysis and have the effrontery to make this suggestion, not to the uninstructed public but to the medical profession Presumably, as a business organization, the concern believes it will convince a sufficient number of physicians of the therapeutic efficacy of its product to pay for the cost of this advertising campaign If it appraises the situation correctly there need no longer be any wonder expressed that in the recent suit against The Journal, "patent medicine" makers were able to enlist the help of medical men

Correspondence

The Deaf Child's Dependence on the Physician

To the Editor —Helen Keller gratefully acknowledges in her autobiography her indebtedness to a physician for telling her mother that she ought to write to the Perkins' Institution for the Blind for advice about the education of her little daughter stricken with blindness and deafness

It is not always that physicians receive credit for the useful advice they give outside their professional realm But, on the other hand, many physicians fail to render this service Scarcely a month passes that I do not see deaf persons whose condition with regard to speech and education would have been much more favorable if the physician to whom they were taken in childhood had given their parents the address of some competent authority on the teaching of the deaf by the speech method, to whom they could have applied, either by letter or in person, for advice and guidance

Deaf children are almost wholly dependent on physicians for the information that leads to a beginning of their training in speech and lip reading sufficiently early to insure the best results in each case The years between birth and the age of 5 are of the greatest educational importance to a deaf child, and it is only through the physician that knowledge of where to get the necessary guidance can reach the parents early enough to be of the utmost benefit.

The word of the physician has great weight for good or ill and it should be spoken advisedly The parents of a deaf child and the physician desire first of all the restoration of hearing If this cannot be attained, they desire to enable the child to speak and to understand when spoken to, and to live a normal life among hearing and speaking people The tendency of deafness is to segregate its victims and this tendency is unfortunately increased by certain methods employed by many teachers in the education of the deaf It is to the employment of finger spelling and sign language during the impressionable educational period that the creation of the typical 'deaf-mute' is principally due If the child is carefully trained from its earliest infancy to associate ideas with the visible movements of speech, and his thought habits are formed along normal lines of intercourse by the universal method of communication, he will not find himself an alien using a foreign language when he leaves the school and takes up his life work

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[1] The Journal A M A Oct 10 1914 reprinted in the ninth (latest) edition of 'The Propaganda for Reform

The physician who, by his advice, or by his failure to advise, allows the deaf child to enter the abnormal environment of the silent method of teaching, is helping to deprive that child of a fair chance to surmount his misfortune to the utmost possible degree When he directs the child's parents to some person who believes in, or at least uses silent methods of communication in his dealings with his pupils, the physician is heading that child toward deaf-mutism and isolation

Probably the person to whom the physician sent the parents for guidance says that his is a "combined school" in which they employ all methods of reaching the imprisoned mind of the child that they teach by speech and lip reading as well as by finger spelling and the sign language As a matter of fact, many years of experience have shown that it is not possible to develop adequately the inherent possibilities of practical speech and speech reading when silent methods of communication are employed with the pupils during their school life The child goes into such a school a possible member of a speaking community, and comes out a deaf-mute, whose only means of communication with those around him is either by finger spelling, the sign language or pencil and paper It is even true, sometimes, that the child whose deafness has occurred after speech has been acquired, and who enters those portals a speaking person, comes out dumb

Bearing these facts in mind, the physician should place his patient in communication with some educator who does not use the primitive methods of silent communication If such a person is not available close at hand, for a personal interview, an address should be given to which a letter may be sent asking for guidance Educators are like physicians in giving freely and willingly their best advice and service to rich and poor alike

I will gladly send to any physician on request a list of the schools for the deaf in this country and Canada, classified according to method of instruction and location, where a deaf child can be educated free of charge

John Dutton Wright,
1 Mount Morris Park, West, New York City

Note on Present Condition of Patient in Case of Implantation of Testes, Previously Reported

To the Editor —Last May (The Journal, May 13, 1916) I reported a case of double implantation of testes, taken from the dead body, in a subject who had lost both testes This report comprised the details of the operation and the condition of the patient and of the implanted organs seven months after the implantation The patient reported, Aug 15, 1916, one year and fifteen days after the implantation I found that, while a moderate degree of atrophy of the implanted organs had occurred, they were still much in evidence, being about the size of the testes of a boy of 10 or 12 years of age They were firm, of fairly normal contour, and the epididymides were plainly definable The sexual function was normal and more than ordinarily vigorous The patient stated that, when conditions were favorable, he was in the habit of having satisfactory coitus every other day He also stated that his muscular vigor was exceptional, and that he could hold his own again in various forms of athletics He expressed himself as so well satisfied with results that, should it become necessary, he would gladly submit to a repetition of the implantation

G Frank Lydston, M D, Chicago

Dr de Tarnowsky vs Jenner Medical College

To the Editor —The annual announcement of Jenner Medical College has just been sent me, and I find my name listed in its faculty as professor of surgery The only connection I have had with Jenner Medical School has been through some of their students attending my Cook County Hospital clinics, which are open to students and graduates of all schools George de Tarnowsky, M D, Chicago

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

POWERS OF HEALTH OFFICERS

To the Editor —Please answer the following questions Has a municipal or city board of health the authority to prevent entrance into that state or municipality of a person suffering from an infectious disease, and traveling in a private conveyance? For example A child suffering from diphtheria and needing antitoxin and hospital treatment is being carried by a private conveyance to a hospital in a neighboring city Can the health officers of this neighboring state or city prevent the entrance in a private conveyance of the patient mentioned? If so, must this duty be especially designated or will the general state law allow that much executive action to the health officers? R D T

Answer —Generally speaking, most state health laws vest the state health officer or some similar official with the power to quarantine against the entrance of infectious diseases These laws give this official the further power of making rules and regulations vesting local officials with a like power of quarantine Many of these health laws frequently vest local officials with this power, usually subject, however, to the state health officers

The health laws of many Southern states frequently specifically mention railways and vessels as being subject to the regulation of health officers, state or municipal Under one rule of construction, a law thus specifically mentioning certain things thereby impliedly excludes other things which might be of the same class But in this case the power of a health officer to prevent the entrance into a state of a person infected with a communicable disease would not necessarily come from this section, but would come from the general powers vested in the health officers under the health laws The quarantine of the case would not be because of the conveyance but because of the disease A state may so quarantine under that power which is called the police power and which gives a state the right to protect itself against another state Subdivisions of a state, such as a county or a municipality, have a similar right of power when so vested therewith either by the health officers or the state health law, such as the state law giving the local governing bodies powers to regulate controllable diseases See Chapter 22, Article 3, Sections 736, 739, and Chapter 228, Article 1, Section 7061, Alabama Laws, Chapter 4348, Sections 1117, 1118, 1120, Florida Laws, and Sections 1463, 1662, Georgia Political Code

RESUSCITATION FROM DROWNING

To the Editor —Please answer the following questions 1 What are the most approved methods for resuscitation of the drowned? 2 What is the longest time that a person can remain submerged in water and live, and is resuscitation possible after one hour's submersion? 3 Is the so called Scandinavian method of holding the head of the patient under water scientific, and has it been adopted by the United States government? 4 Please refer me to references on the general subject of resuscitation E P Strathern, M D, St Peter, Minn

Answer —1 The method of resuscitation advised in government bulletins and by the Commission on Resuscitation from Electric Shock is that of Schafer The patient is held with the head down so that the water may run out of the lungs by gravity He is then placed flat on his abdomen The operator stands straddle over the patient and makes alternately pressure and relaxation with both hands on the base of the thorax about twenty times a minute It has been shown that by this procedure more air is moved than by the older Silvester method The use of some simple apparatus to inflate the lungs rhythmically is probably of more value than simply external pressure It is important that the manual method be not neglected if the more elaborate apparatus is not on the spot The use of oxygen is rational Cardiac massage, the injection of epinephrin into an artery followed by saline solution, as advocated by Crile, and the direct injection of epinephrin into the pericardial sac may be a useful procedure if the conditions are such that they can be practically carried out The respiration usually fails long before the circulation It has been suggested that whenever any form of direct inflation of the lungs is attempted, pressure be made on the rigid trachea, thus collapsing the esophagus, otherwise the air will simply inflate the stomach

2 It is not definitely known how long a person may be under water and be revived The statements as to the actual

time a person has been submerged are often untrustworthy If syncope takes place at once and no water enters the lungs, the individual will live much longer than if he had attempted to breathe under water

3 The idea of siphoning the water out of the lungs by keeping the head submerged seems irrational because this would probably not form a siphon in any sense

4 The following are some recent references on the subject of resuscitation

Schafer E A Artificial Respiration in Its Physiologic Aspects, The Journal Sept 5, 1908 p 801
Henderson Yandell Resuscitation Apparatus, The Journal July 1, 1916 p 1
Frazier, C. H Resuscitation by Cardiac Massage The Journal May 20, 1911 p 1448
Dooley D H On Resuscitation *Uni Missouri Bull* October 1913
The Resuscitation of the Heart After Arrest, editorial, The Journal Jan 1 1916 p 32
Gunn J A, and Martin P A Intrapericardial Medication and Massage in the Treatment of Arrest of the Heart Jour Pharmacol and Exper Therap, 1915 vii 31

NAPHTHALENE IN GASOLINE FOR AUTOMOBILES

A subscriber has sent in some tablets with a circular advertising Inajiffi (Inajiffi Fuel Company, Akron, Ohio) The circular reads in part

> More Power for Less Money
> IMPORTANT
> To Automobile, Motorcycle,
> Motorboat Owners,
> Operators and Dealers
> Inajiffi Prepared Gasoline is 100% Efficient.
> Contains neither Alcohol Acid Ether
> or Camphor
> Serves You Quickly Faithfully, Economically
> You will Never Know the meaning of Real Engine
> Economy and Efficiency until you experience the
> quiet smooth, easy running and augmented power
> features produced by INAJIFFI'

The tablets were submitted for examination to our chemists, who report

> The tablets had the odor of naphthalene and also the general physical properties of this substance, the material of the tablets melted at about 80 C, and this melting point was not changed materially when the powdered tablet was mixed with naphthalene, it was readily and completely soluble in chloroform, and burned on ignition without leaving an appreciable residue When the material was treated to form the picrate according to Mulliken (Identification of Organic Compounds, i, 201) a substance was obtained which melted at from 150 5 to 151 5 C, uncorrected This agrees closely with the melting point of naphthalene picrate which is stated to melt at 150 C, uncorrected The examination shows that the tablets consist to a large extent if not entirely, of naphthalene

We publish this note to suggest to our readers that before investing in any of the hundred and one accessories and 'improvements" sold in connection with automobiles, they obtain reliable, unbiased opinions as to the merits of the contrivance in question

Because of its high carbon content, naphthalene, when dissolved in gasoline does add some energy, but its solubility is so low that the gain is negligible Certainly in the present instance the addition of the few tablets the dealers recommend is so small that the effect would not be noticeable But if the addition of this small quantity did produce appreciable augmentation of energy, why not buy naphthalene in the form of mothballs?

BORDET GENGOU BACILLUS — ETIOLOGY OF WHOOPING COUGH — PERTUSSIS VACCINE

To the Editor —1 Can you tell me something about the Bordet Gengou bacillus used in the preparation of Mulford s pertussis vaccine? 2 Is the etiology of whooping cough proved? 3 Has the vaccine given satisfactory results as treatment or as prophylaxis?

Harold G Geggie M D Wakefield R. I

Answer.—1 The Bordet-Gengou bacillus was first described in 1906 It is somewhat larger than *Bacillus influenzae* It occurs singly and in groups It has rounded ends is nonmotile, and possesses no flagella It has neither capsules nor spores It stains poorly with ordinary anilin dyes, and is gram-negative It stains readily with carbolmethylene blue carbol toluidin blue and methylene blue. Unlike the influenza bacillus, it can be made to grow in mediums which do not contain hemoglobin Bordet and Gengou recommend a potato-glycerin-blood agar medium The organism is aerobic.

2 The etiology of whooping cough has been a controversial subject for several years It is now generally believed that the Bordet-Gengou bacillus is the cause of whooping cough This organism is found in the majority of cases, and has not been isolated from those free from the disease

3 According to New and Nonofficial Remedies, 1916, irregular but somewhat encouraging reports of the use of vaccines of this bacillus are available In general, the evidence indicates that it is of value both for prevention and for treatment, although some writers report that results have not been satisfactory Four preparations are described in New and Nonofficial Remedies

The following references may also be consulted

Hess, A F Use of a Series of Vaccines in Prophylaxis and Treatment of an Epidemic of Pertussis, The Journal, Sept 19, 1914, p 1007
Whooping Cough Therapeutics The Journal, Jan 30, 1915, p 434
Cause of Whooping Cough — Value of Pertussis Vaccine Queries and Minor Notes The Journal Aug 29 1914, p 796
Pertussis and Vaccination, editorial The Journal, Aug 21, 1915, p 724

VACCINES IN PERTUSSIS

To the Editor —There are so many bacterial vaccines on the market that the general practitioner is confused and uncertain as to their use What is the concensus of opinion as to their value in pertussis?

A B Fitch M D, Factoryville, Pa

Answer.—See reply to question three in letter above to Dr Geggie

USE OF PARAFFIN BY FRENCH ARMY SURGEONS

To the Editor —Can you give briefly the paraffin method used by the French army surgeons of treating burns? I understand that they use such a method with great success

C C Green M D, Beaver City, Neb

Answer —It may be that our correspondent refers to the use of a proprietary preparation to which reference has already been made See Current Comment entitled "Miracles in the War Zone," The Journal, Aug 12, 1916, p 516, also a Query and Minor Note, p 535 of the same issue It is possible, however, that he is referring to the method mentioned by our Paris correspondent in the communication published in The Journal, Jan 22, 1916, p 290, from which we quote the following

> INJECTIONS OF PETROLATUM AND SOFT PARAFFIN IN FISTULOUS TRACTS PRODUCED BY WOUNDS OF WAR
>
> Dr Marquis of Rennes has reported to the Societe de chirurgie de Paris some excellent results given by injections of a mixture of petrolatum and soft paraffin in cases of serious lacerations, the repair of which seems difficult or likely to be indefinitely prolonged and especially in large fistulous tracts where drains had been placed for a long time After various attempts at forming a mixture with a higher melting point than petrolatum which, melting at 40 C (104 F) is absorbed by the dressing Marquis decided on a mixture of nine parts of petrolatum and one of soft paraffin This petrolatum and paraffin mixture melted in a water bath is injected into the fistula with a syringe of 20 c c while a tampon closes the opposite orifice of the fistula These injections are repeated every day or every two days Before this treatment fragments of projectile, of clothing and of bone should be carefully removed from the wounds It is not necessary to wait until suppuration has completely ceased but it should not be profuse
>
> These injections of petrolatum and paraffin are painless, and they shorten the time of healing of fistulous tracts considerably

DEATH FOLLOWING BLOW ON HEAD OR SOLAR PLEXUS

To the Editor —A man dies immediately following a blow by a fist on his neck or face Necropsy reveals no fracture or hemorrhage in or within the cranium or spinal canal and no pathologic condition of the heart coronary arteries or kidneys What might be the cause of death? Would it be possible for a blow over the solar plexus to cause immediate death? Kindly omit name and address in answer

A R V

Answer —A blow on the head may be followed by concussion of the brain or shock either of which conditions may give rise to immediate death without any noteworthy necropsy findings The pathology of shock is still imperfectly understood, but in some cases death is probably due to vasomotor or cardiac paralysis Blows falling in the epigastric region over the large plexus of sympathetic nerves may cause immediate death The cause of death in such instances is probably a cardiac or respiratory paralysis which may not be accompanied by any gross anatomic changes The subject is discussed in all good textbooks on legal medicine

Medical Education and State Boards of Registration

COMING EXAMINATIONS

California Los Angeles, Oct 3 Sec , Dr Charles B Pinkham, Room 527 Forum Bldg , Sacramento

Colorado Denver, Oct 3 Sec , Dr David A Strickler, 612 Empire Bldg , Denver

Georgia Atlanta, Oct 10 12 Sec , Dr C T Nolan, Marietta

Idaho Wallace, Oct 3 Sec , Dr Charles A Dettman, Burke

Illinois Chicago, Oct 10 12 Sec , Dr C St Clair Drake, Springfield

Iowa Des Moines, Oct 17 19 Sec , Dr Guilford H Sumner, State House, Des Moines

Kansas Topeka, Oct 10 12 Sec , Dr H A Dykes, Lebanon

Michigan Lansing, Oct 10 12 Sec , Dr B D Harison, 504 Washington Arcade, Detroit

Minnesota Minneapolis Oct 3 6 Sec , Dr Thomas S McDavitt, 814 Lowry Bldg , St Paul

Mississippi Jackson, Oct 24 25 Sec , Dr J D Gilleylen, Jackson

Missouri Kansas City, Sept 18 20 Sec , Dr J A B Adcock, State House, Jefferson City

Montana Helena, Oct 3 Sec , Dr William C Riddell, Helena

New York Albany, Buffalo, New York and Syracuse, Sept 19 22 Mr Harlan H Horner, Chief Examinations Division, The University of the State of New York, State Department of Education, Albany

Porto Rico San Juan, Oct 3 Sec , Dr Quevedo Baez, San Juan

Illinois May Report

Dr C St Clair Drake, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, May 4-6, 1916 The total number of subjects examined in was 10, total number of questions asked, 100, percentage required to pass, 75 The total number of candidates examined was 166, of whom 154 passed and 12 failed Two candidates did not complete the examination The following colleges were represented

College	Year Grad	Total No Licensed
PASSED		
Howard University	(1912)	1
Bennett Medical College	(1914) (1915, 6)	7
Chicago Coll of Med and Surg	(1914) (1915, 4) (1916, 21)	26
Chicago Hospital College of Medicine	(1916)	1
College of Physicians and Surgeons, Chicago	(1910)	1
Hahnemann Medical College and Hospital, Chicago	(1916)	4
Jenner Medical College	(1915)	1
Loyola University	(1916)	24
Northwestern University	(1915 3) (1916, 14)	17
Rush Medical College	(1911) (1916, 22)	23
University of Illinois	(1911) (1914) (1916, 41)	43
State University of Iowa, College of Medicine	(1890)	1
Boston University	(1903)	1
Meharry Medical College	(1911) (1914) (1915)	3
National University of Arts and Sciences	(1914)	1
FAILED		
Bennett Medical College	(1915)	1
Chicago Hospital College of Medicine	(1915)	3
College of Med and Surg , Physio Med , Chicago	(1910)	1
Rush Medical College	(1901)	1
University of Louisville	(1911)	1
Detroit College of Medicine	(1904)	1
Meharry Medical College	(1912) (1913) (1914)	3
University of Pennsylvania	(1906)	1

Florida June Report

Dr E W Warren, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Jacksonville, June 13-14, 1916 The total number of subjects examined in was 7, total number of questions asked, 70, percentage required to pass, 75 The total number of candidates examined was 61, of whom 50 passed and 11 failed The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Atlanta College of Phys and Surgs	(1909) 77, (1910)	80
Atlanta Medical College	(1915) 82, 85, (1916) 77, 77, 78,	78, 78, 81, 83, 83, 84, 84, 87, 89, 90, 91
Southern College of Medicine and Surgery	(1914)	78
University of Georgia	(1916)	80
Bennett Medical College	(1913) 87, (1914)	75
Medical College of Evansville	(1878)	73 *
Louisville Medical College	(1892) 72,* (1895)	81
Tulane Univ of Louisiana	(1913) 76, (1914) 83, (1916)	76
Baltimore Medical College	(1896)	77
Johns Hopkins University	(1908)	75
Harvard University	(1914)	76
Saginaw Valley Medical College	(1903)	75
Washington University	(1892)	71 *
Dartmouth Medical School	(1895)	89
Bellevue Hospital Medical College	(1894)	77
Columbia University, College of Phys and Surgs	(1904)	79
Jefferson Medical College	(1916)	90, 90
University of Pennsylvania	(1911) 84, (1915)	84
Medical College of the State of South Carolina	(1916)	89
Meharry Medical College	(1915) 76, (1916)	79, 87
Vanderbilt University	(1916) 85,	85, 91
University of Texas	(1916)	84, 87
University of Virginia	(1897)	93
FAILED		
Birmingham Medical College	(1915)	71
Atlanta Medical College	(1915)	70
Rush Medical College	(1899)	65
Physio Medical College of Indiana	(1886)	40
Kansas Medical College	(1909)	68
Hospital College of Medicine, Louisville	(1896)	61
University of Louisville	(1910)	68
Physio Medical Institute, Cincinnati	(1876)	26
Meharry Medical College	(1915) 57, (1916)	73
University College of Medicine, Richmond	(1907)	59

* Credit allowed for years of practice

Kentucky June Report

Dr A T McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, June 13, 1916 The total number of subjects examined in was 10, total number of questions asked, 100, percentage required to pass, 70 The total number of candidates examined was 70, of whom 64 passed, including 3 osteopaths, and 6 failed, including 1 osteopath The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Chicago College of Medicine and Surgery	(1913)	85
Louisville National Medical College	(1912)	70
University of Louisville	(1915) 80 (1916) 70, 74 75 76,	77, 77, 77, 78, 79, 80, 81, 81, 82, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 84, 84, 85, 85 86 86, 86, 86, 87, 87, 90
Johns Hopkins University	(1914)	89
St Louis College of Physicians and Surgeons	(1915)	74
Eclectic Medical College, Cincinnati	(1916)	83, 92
University of Cincinnati	(1916)	87
University of Pennsylvania	(1914) 92, (1916)	85
Lincoln Memorial University	(1916)	84
Meharry Med Coll	(1908) 72, (1915) 79, (1916) 71, 74, 76	76, 81
Memphis Hospital Medical College	(1911)	73
University of Tennessee	(1900)	82
Vanderbilt University	(1909) 93, (1912) 71, (1916) 83, 88,	89, 91
FAILED		
Louisville Medical College	(1907)	38 *
Louisville National Medical College	(1912)	62
University of Louisville	(1912) 63, (1916)	75 †
University of Nashville	(1908)	62 *

BY SPECIAL ORDER OF THE BOARD

College	Year Grad	Total No Licensed
PASSED		
American Eclectic Medical College	(1894)*	1

* Graduation not verified
† Fell below the required average in two subjects

Colorado July Report

Dr David A Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, July 5, 1916 The total number of subjects examined in was 8, total number of questions asked, 80, percentage required to pass, 75 The total number of candidates examined was 20, of whom 19 passed, including 4 osteopaths, and 1 osteopath failed Three other candidates who entered the examination were dismissed by request Eighteen candidates were licensed through reciprocity The following colleges were represented

College	Year Grad	Per Cent
PASSED		
University of Colorado	(1916) 82, 83 7, 83 9, 85, 85 1, 85 1, 85 8,	86 4, 86 7, 87 3, 90 2
Harvard University	(1916)	86 7
Lincoln Medical College	(1909) 76 1, (1910)	79
Vanderbilt University	(1915)	88 9

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
College of Physicians and Surgeons, Chicago	(1901)	Illinois
Rush Medical College	(1915)	Mississippi
University of Kansas	(1906)	Kansas
Maryland Medical College	(1907)	Delaware
Detroit College of Medicine	(1901)	Michigan
University of Michigan Medical School	(1893)	Oregon
Marion Sims College of Medicine	(1893)	Missouri
St Louis College of Physicians and Surgeons	(1897)	Missouri
University Medical College, Kansas City	(1897)	Iowa
John A Creighton Medical College	(1907)	Iowa
University and Bellevue Hospital Medical College	(1911)	New York
Starling Medical College	(1893)	S Dakota
Medico Chirurgical College of Philadelphia	(1912)	Penna
University of Pennsylvania	(1908)	Penna
University of Tennessee	(1914)	Tennessee
Vanderbilt University	(1909)	Missouri
University of Vermont	(1908)	Vermont
Imperial University, Tokyo	(1905)	Utah

Book Notices

Pulmonary Tuberculosis By Maurice Fishberg M D, Clinical Professor of Tuberculosis, New York University Cloth Price $5 net. Pp 639, with 119 illustrations. Philadelphia Lea & Febiger, 1916

This book is presented to supply the general practitioner with information on the etiology, diagnosis, prognosis and treatment of pulmonary tuberculosis, its clinical forms and common complications An experience of eighteen years with tuberculosis problems in New York has laid the foundation for this task The author gives the results of his personal experiences, and furnishes many valuable references on every phase of the problem The home treatment of tuberculosis, the importance of constitutional symptoms, tuberculosis in the aged, and the importance of economic conditions as affecting the diminution of tuberculosis are considered A strong distinction is drawn between active disease and tuberculous infection Physical diagnosis and roentgenography are gone into minutely In treatment, attention is given to psychotherapy and the wise use of available means, considering the pocketbook of the patient. In the discussion of medicinal treatment, the use of tuberculin is condemned Artificial pneumothorax is clearly set forth Some omissions are noted, one of these being the lack of citation or reference to the standard Turban or National Association classification of tuberculosis Too great stock is taken in the childhood immunization against tuberculosis with a consequent neglect in completely considering prophylaxis and prevention in the adult In spite of a number of minor statements which may be questioned, the book is full of interesting and enlightening information concerning pulmonary tuberculosis

A Text Book of Pathology By W G MacCallum, Professor of Pathology in the College of Physicians and Surgeons, Columbia University, New York. Cloth Price, $7 50 net Pp 1085, with 575 illustrations Philadelphia W B Saunders Company, 1916

Dr MacCallum has written this book evidently with the diseases of the body in mind, discussing the pathology of each condition on the basis of etiology The book is a treatise on medicine as well as a pathologic textbook He describes many specific cases illustrative of the conditions discussed, such case reports add greatly to the practical value and interest of the book. After each chapter references to literature are given, chiefly with a view to enable the student who wishes to study any subject further

The author points out continuously the limitations of our knowledge He says of cloudy swelling

"All this is very contradictory and confused, but at least one may see that it is scarcely believed any longer that the granular opacity of the organ cells in infections and intoxications is due to the accumulation of protein food materials, but that it is intimately related to changes in the specific granules of the cell More study is necessary to make the matter *quite clear*"

Of hyaline degeneration

"This expression is loosely employed to class together, in the present state of our ignorance, a great many unrelated substances, usually recognizable only with the microscope, which have in common besides their protein nature, only their translucent clear or hyaline appearance and their tendency to stain brightly with such acid dyes as eosin"

In discussing new growth of tissue and tissue repair, he says

> Very vague too are our notions about the substances which cause the sudden new-growth of tissue at the onset of puberty, and especially those which produce the remarkable changes in the breasts and other organs in pregnancy"

Particularly interesting is the author s discussion of arteriosclerosis After discussing numerous views which have been advanced, he says

'It seems more probable that, as the French have so long suggested arteriosclerosis is the effect of some injurious or poisonous agent acting upon the intima of the arteries as it might upon any other organ, with destruction fat accumulation and repair What this agent may be is as yet uncertain"

In the discussion of shock the recent experimental studies have been considered A chapter of particular interest is that devoted to the effects of light, radiant energy and electricity on the tissues The clinical method of the study is particularly well illustrated in that section of the book devoted to the pathology of the conduction bundles of the heart This includes a brief discussion of the mechanism by which recent studies have been made and illustrates by electrocardiographic curves the results of the various changes in the condition of the heart tissues On page 504 two exceptional case reports are given which are illustrated with photographs of lesions resulting from a staphylococcus septicemia Special sections are devoted to the various acute infections, the chapter on poliomyelitis being particularly interesting at this time

The book is based on the course in the subject which the author gives at the College of Physicians and Surgeons of Columbia University, New York Several section usually included in books on pathology, for instance, the biology of bacteria and other parasites, malformations, and many diseases of the nervous system—are not discussed and little is said of resistance and immunity The book is not, therefore, a complete reference book on the subject of pathology It is, however, one of the most practical and interesting modern books on the subject There are 575 excellent illustrations, practically all new and especially prepared for this book from specimens in the department of pathology headed by Dr MacCallum

A Manual for Fire Prevention and Fire Protection for Hospitals By Otto R Eichel Director Division of Sanitary Supervisors New York State Department of Health Cloth Price $1 net. Pp 69 New York John Wiley & Sons 1916

In this book Eichel states the significant points concerning fire prevention and protection which should be borne in mind by those interested in hospital construction and management Local and state restrictions and the requirements of insurance underwriters are now so systematized that the hospital superintendent could not neglect this subject even were he careless The author emphasizes the importance of prevention rather than protection He outlines the minimum amount of equipment which hospitals should possess for overcoming incipient fires In three chapters he outlines various dangers which must be particularly guarded against The most important and, perhaps, the best part of the book is that dealing with the hospital fire department The author outlines a scheme for the organization of hospital attendants for action during fires, and describes the conduct of the fire drill He also indicates recent literature of service in connection with this work While the book contains nothing new to those acquainted with the general aspects of the subject, it will serve as a timely reminder to hospital superintendents and others that fire is an ever present menace

Miscellany

Pulmonary Tuberculosis Survey in Cincinnati

Public Health Bulletin 73 contains a report on an investigation into pulmonary tuberculosis in Cincinnati Though published under the title Tuberculosis Among Industrial Workers," its scope is wide, as it covers also predisposing causes The survey was originally undertaken at the request of the board of health and of the Antituberculosis League of Cincinnati, in order to determine to what degree the high phthisis death rate of that city was influenced by industrial conditions In order to ascertain what effect, if any, occupation has on pulmonary tuberculosis, Surgeons Robinson and Wilson inspected 154 factories, representing thirty-eight different industries, and examined 19,932 persons The second part of the inquiry related to the predisposing causes of tuberculosis in cases reported to the board of health The housing and economic conditions of families of the tuberculous were studied in detail In the same way it was endeavored to ascertain what had been the most prominent predisposing factors of the disease among the inmates of the municipal tuberculosis hospital Meteorologic conditions and the prevalence of Ohio river floods were also collated with the regional prevalence of pulmonary tuberculosis The prevalence of other diseases usually considered as predisposing to tuberculosis was carefully investigated and, finally, consideration was given to the racial character and rate of growth of the population The conclusions are that

1 Climatic conditions, floods and prevalence of other diseases have no influence on the death rate from pulmonary tuberculosis in Cincinnati

2 Occupational hazard has been one of the factors predisposing to tuberculosis in a considerable number of cases, but there seems no reason to believe that this cause is more active in Cincinnati than elsewhere

3 The fact that the white population has a larger proportion of Germans and of Irish, and a small proportion of Jews and of Italians, together with the large number of colored people, is shown to be one of the reasons for the high tuberculosis death rate

4 The comparative slowness of the growth of the city has had a similar effect because, among other reasons, it inhibits the destruction of old and the building of new houses

5 Poor economic conditions, bad housing and the inadequacy of financial relief for families whose wage earner is tuberculous, form a closely interrelated group of factors for the causation and maintenance of a high tuberculosis death rate

6 Insufficient provision for the care of incipient cases, insufficient knowledge as to the distribution of persons afflicted with the disease, inadequate cleansing and disinfection of houses and rooms vacated by consumptives and inadequate segregation of advanced cases were found to be among the most important causes of the high death rate

The recommendations follow from these conclusions, and they are

1 Institution of measures whereby a more accurate knowledge can be had of the whereabouts of all cases

2 Strict medical surveillance over families in which tuberculosis exists

3 Medical examination of industrial workers

4 Improvement in sanitary and hygienic conditions in work places, the improvement of home conditions by providing sanitary homes

5 Revision of the building code and the placing of tenement house inspection with the health department

6 Increased segregation of advanced cases

7 State industrial insurance to enable workers' families to be provided for while remedial measures are being carried out

8 Medical examination of lodging house inmates

9 The erection of a sanatorium for the treatment of incipient cases

Inosite as a Food

It is more than sixty years since inosite, hexahydroxybenzene, $C_6H_{12}O_6$, was first described as a constituent of muscle by Scherer (*Ann Chem*, 1850, lxxiii, 322) The identity of its empiric formula with the hexose carbohydrates like glucose, and the widespread distribution which inosite was soon found to have in the tissues and fluids of animal structures, as well as in the plant kingdom, served to arouse considerable physiologic interest in the compound Students of a generation ago will recall in particular the attempt to establish some sort of relation between inosite and the carbohydrates Kulz of Marburg, to whom we owe many important observations in the field of the pathology of diabetes, fed large quantities of inosite to healthy persons and also to diabetics In neither case was he able to recover more than insignificant amounts of the compound from the urine, and inasmuch as the diabetics showed no increased elimination of sugar after ingestion of inosite, Kulz concluded at one time that the new substance might be available in the diabetic organism as a source of energy in place of sugars (Kulz, E *Beitr Path u Therap d Diabetes Mellitus*, 1874, i)

It is apparent, however, that, instead of being oxidized in the body, inosite given by mouth may be lost again with the feces, destroyed by the micro-organisms of the alimentary tract, or stored up in some tissue In none of these cases would it reappear in the urine unchanged, yet it would not be a source of energy to the organism The best test of the oxidative metabolism or combustion of a substance in the body is furnished by studies with the respiration apparatus in which the consumption of oxygen and the production of carbon dioxid can be measured accurately The ratio of these values, that is, the respiratory quotient, CO/O, ascertained under suitably controlled conditions, gives an index to the nature of the metabolism in the body A substance of carbohydrate nature tends to raise the quotient toward unity

If inosite were oxidized in the body in the same manner as the carbohydrates or glucose, for instance, then a rise in the respiration quotient might be expected R J Anderson (The Utilization of Inosite in the Dog, *Jour Biol Chem*, 1916, xxv, 391, Anderson, R J, and Bosworth, A W The Utilization of Inosite in the Animal Organism, *ibid*, 1916, xxv, 399) put the problem to the exact test in an experimental animal In the case of the dog he found that inosite is not utilized to any extent It is neither stored nor oxidized in the body, but the greater part is excreted unchanged Even as much as 2 gm per kilogram of body weight do not cause any appreciable rise in the respiratory quotient The reason is not far to seek More than three quarters of the amount of inosite fed has been recovered from the excreta It is absorbed very slowly from the intestine, hence it may cause more or less severe diarrhea, and only a small portion leaves the body through the kidneys

Of late there has been considerable discussion of a compound, phytin, which represents inosite conjugated with phosphoric acid, presumably as a rule as inosite hexaphosphoric acid, in which form it is widely distributed in the seeds, roots and tubers of plants (An elaborate review of the subject has been prepared by Rose, A R *Biochem Bull*, 1912-1913, ii, 21) Phytin has appeared in the medical literature endowed with a great variety of problematic virtues, most of them attributed to the *organic* combination of phosphoric acid Little has been said about the inosite component of the molecule, indeed, it was not until comparatively recent years that inosite was understood to be the organic component of the phytin molecule When phytin is fed, inosite is presumably liberated in the digestive tract The evidence recently obtained by Anderson and Bosworth at the New York Experiment Station, Geneva, gives no promise of nutritive value to inosite in the organism of man Their results confirm earlier observations that inosite given by mouth disappears without more than very small quantities appearing in the urine When inosite is taken by human subjects at the rate of about 0 5 gm per kilogram of body weight per day, it produces some diarrhea at first or frequent soft stools After a few days the stools, although more frequent than usual, are likely to be of nearly normal consistency Anderson and Bosworth observed no marked or appreciable effect on the metabolism of man Inasmuch as less than 10 per cent of the inosite ingested was eliminated unchanged in the urine and none was found in the feces, it remains to be ascertained whether it was destroyed by alimentary bacteria, for the negative observations on dogs make it highly improbable that inosite is burned up in the body

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Society Proceedings

COMING MEETINGS

Am Assn for the Study and Prev of Inf Mort, Milwaukee, Oct 19 21
Am Assn of Obstetricians and Gynecologists, Indianapolis, Sept 25 27
American Association of Railway Surgeons, Chicago, Oct 17 19
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Nevada State Medical Association, Reno, Oct 10 12
New England Surgical Society, Boston, Oct 5 7
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Virginia State Medical Society, Norfolk, Oct 24 27
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Medicolegal

No Direct Claim Against Employer for Services to Employee

(Bloom vs Jaffe (N Y), 157 N Y Supp 926)

The Supreme Court of New York, Appellate Term, First Department, reverses a judgment for $21 obtained by the plaintiff, a physician for medical services to an injured workman, and dismisses his complaint, with costs The court says that it was conceded at the trial that the workmen's compensation commission had fixed the physician's compensation at $21, by which the parties apparently meant that the commission approved a claim for services of this amount and included it in the award to the workman, as provided by Section 24 of the New York workmen's compensation law The employee assigned the award, or this portion of it, to the plaintiff, who on these facts, was awarded the judgment for $21 against the defendant, who was apparently the employer of the injured workman It seems to the court quite plain that the plaintiff physician had no cause of action At common law a physician who rendered services to an injured employee had no right of action against the employer, although the injured employee in a proper case might have recovered the reasonable value of such services as part of his own damages The workmen's compensation act has given an injured employee a new kind of remedy, and seeks to compensate him for all injuries suffered in the course of his employment, regardless of whether these injuries were caused by the negligence of his employer As part of this compensation it provides in Section 13 for medical service at the expense of the employer, and where the employee has been compelled to procure such service himself the law makes provision for the inclusion of a claim for such service in the award made to the employee The primary purpose of the statute is not, however, to provide compensation to the physician, but solely to provide compensation to the injured employee for such medical service as the law permits him to procure at the expense of the employer It does not, therefore, provide for any award to the physician, but merely gives the physician a lien on the compensation awarded to the workman which shall be paid therefrom only in the manner fixed by the commission In this case the plaintiff was not seeking to enforce his lien on the compensation awarded to the employee but was seeking to recover the amount directly from the employer Moreover, even if he were seeking to enforce his lien on the award in a direct proceeding before the commission he would be bound to show that the commission had fixed the manner of its payment The assignment from the injured employee could give him no right of action, because the statute expressly declares that claims for exemptions or benefits due shall not be assigned In basing this decision on the ground that no award had been made to the plaintiff which he could enforce against the defendant the court does not desire to imply that in any event payment of an award could be enforced against the employer except by action instituted by the commission as provided in Section 26 The plaintiff had under no circumstances any direct claim for compensation against the employer

Unlawful Practicing of Medicine by Clairvoyant — Evidence

(Commonwealth vs Lindsey (Mass) 111 N E R 869)

The Supreme Judicial Court of Massachusetts in overruling exceptions to the conviction of the defendant of unlawfully practicing medicine says that, if the defendant was a clairvoyant and as such came within the exception of the Massachusetts statute he could not prescribe medicine for the cure of disease even if the diagnosis of it and the kind of medicines prescribed were revealed to him through clairvoyance Near the street door of the building in which he carried on his business was the sign 'Dr Willard M Lindsey, Inc' This was the name of a corporation of which he was the president He also was the president of another corporation, The Magnetic Sanitarium Company It was plainly for the jury to say whether, in the sale of the medicines, he was acting entirely as the agent of the corporations, or was engaged at the time in the practice of medicine His guilt or innocence was to be determined by what he actually did It was not to be determined by what he purported to do A requested instruction to the jury was properly denied which stated that, if the people who consulted the defendant believed him to be a clairvoyant and the defendant purported to treat them by that method of treatment or if he purported to ascertain their physical condition by means of clairvoyance, it was not important for the jury to decide what constitutes clairvoyance Nor was it error to permit the commonwealth to introduce evidence of the defendant's acts and conversations on different days between April, 1913, and November, 1914, although the commonwealth had elected to rely on Nov 24 and 30, 1914, respectively, as the days on which the offenses were committed While it is a well established rule of law, in the trial of a criminal case, that the commonwealth is not allowed to introduce evidence of other crimes with the purpose of showing the defendant to be guilty of the offense charged, it is equally well established that evidence of other crimes and acts is admissible when they are a part of a common purpose where the plan or scheme of the defendant is a material circumstance, and when the course of the defendant's business is a matter of importance in passing on his guilt or innocence Where the several visits and consultations of a patient with one from whom she is receiving medicines are but parts of the same course of treatment where the speech or conduct of the defendant on one of the occasions may be equivocal, and it is essential to determine the dominant purpose of the defendant on the day of the offense, then the conduct of the defendant on other days, and as a part of the same transaction, may be a matter of great importance, and therefore of probative value Assuming as the defendant claimed, that he could sell and deliver drugs and medicines without violating the particular statute under consideration, the commonwealth had a right to meet this defense by showing the plan and purpose of the defendant, as well as his method of business, in order that the jury might determine whether November 24 and 30, he was acting in the capacity of a salesman or as a physician As sales of liquor at other times than that alleged have been held admissible as showing the intent with which the specified liquors have been kept, so the intent with which the defendant disposed of his medicines on the days in question, whether as sales of goods to customers or as medicines prescribed by himself, might be shown by his conduct respecting people and medicines in his office on other occasions

Liability for Insanity Following Injury to Syphilitic Employee

(Crowley vs City of Lowell (Mass) 111 N E R 786)

The Supreme Judicial Court of Massachusetts holds that, compensation having been awarded for total incapacity as provided in the workmen's compensation act, the decree should be affirmed, although the city contended otherwise on the ground that no causal connection between the injuries of the employee and the general condition of paresis rendering him insane and requiring his commitment to an asylum was shown by the record The material evidence before the committee on arbitration submitted without the introduction of further testimony to the industrial accident board on review warranted the findings, the court says, that the employee had a preexisting constitutional disease known as syphilis' which being dormant, left his ability to perform the arduous work for which he was hired unimpaired and that because of the nature of the accident arising out of and in the course of employment, his nervous system suffered a shock sufficiently severe to aggravate and accelerate this condition until general paralysis or insanity resulted depriving him of all capacity for work in the future The statute prescribes no standard of fitness to which the employee must conform and compensation is not based on any implied warranty of perfect health, or immunity from latent and

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31 Goiter Problem H G Sloan, Cleveland —p 453
32 Regional Hypertonus L Taylor, Cleveland —p 468
33 Recent Advances in Gynecology and Obstetrics W D Fullerton, Cleveland —p 475
34 Neurologic Reviews T S Keyser, Cleveland —p 479
35 Clinical Laboratory Methods C L Cummer, Cleveland —p 482

Delaware State Medical Journal, Wilmington

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36 Double Shame of Baltimore Her Unpublished Vice Report, Her Indifference H A Kelly, Baltimore —p 2
37 Under Cover of Respectability (To be continued) W D Lane, Wilmington —p 5

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38 Under Cover of Respectability W D Lane, Wilmington —p 7

Indiana State Medical Association Journal, Fort Wayne

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39 *Benzol in Treatment of Leukemia J M Barry and J M Ketcham, Indianapolis —p 315
40 Some Later Methods Used in Diagnosis and Treatment of Sterility P E McCown, Indianapolis —p 323
41 Bacteriologic Study of Recent Epidemic of Infection of Respiratory Tract V H Moon and S C Summers, Indianapolis —p 327
42 Some Considerations in Pelvic Floor Work in Women W H Baker, South Bend —p 329

39 **Benzol in Treatment of Leukemia**—From a study of the literature and from their experience with one case, the authors believe they are justified in concluding that benzol has a wonderfully selective action in chronic myeloid leukemia, if uncomplicated and not of too long duration, that one can count with considerable assurance on getting a rapid reduction in the number of leukocytes, on getting a normal, or nearly normal, blood formula, a rapid diminution in the size of the spleen, an increase in the red cell count and the hemoglobin, and a concomitant improvement in the general health of the patient, increase in weight, etc One should never forget, however, that the drug is a powerful poison, a two-edged sword, and not carry its effects too far, thus completely destroying the function of the bone marrow and substituting a grave aplastic anemia for the leukemia The patient ought to be in a hospital, in bed, the gastro-intestinal tract, kidneys and liver be watched carefully for toxic symptoms, blood counts should be made every few days, the benzol should not be increased in dosage without definite warrant, and its administration should be stopped entirely considerably before the white count has returned to normal With these precautions there should be no grave results

Iowa State Medical Society Journal, Des Moines

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43 Cardiac Pain A Lambert, New York —p 337
44 Tumors of Hypophysis Cerebri, Report of Case C E Ruth, Des Moines —p 343
45 Problems of Surgical Judgment Associated with Treatment of Gastric and Duodenal Ulcers E MacD Stanton, Schenectady, N Y —p 350
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47 Practical Diagnosis and Treatment of Benign Tumors of Bladder E J Harnagel, Des Moines —p 361
48 Pneumonia in Children C W Rominger, Waukon —p 363

Journal of Experimental Medicine, Baltimore

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49 *Non Gas Producing Strain of* Hog Cholera Bacillus Isolated from an Old Laboratory Culture C Tenbroeck, Princeton, N J —p 213
50 *Effects of Exposure to Cold on Experimental Infection of Respiratory Tract J A Miller and W C Noble, New York —p 223
51 Studies on Heterogeneous Hemolytic Serums I L Kritchevsky, Moscow, Russia —p 233
52 Effects of Serum Treated with Agar E Zunz and M Gelat, Lausanne, Switzerland —p 247
53 *Experimental Study of Circumscribed Dilatation of Artery Immediately Distal to Partially Occluding Band, Its Bearing on Dilatation of Subclavian Artery Observed in Certain Cases of Cervical Rib W S Halsted, Baltimore —p 271
54 Distortion of Malarial Parasite Interpretation of "Plasmodium Tenue" (Stephens) M R Lawson, New London —p 291
55 Partial Occlusion of Aorta with Metallic Band Observations on Blood Pressures and Changes in Arterial Walls M R Reid, Baltimore —p 287

50 **Exposure to Cold in Respiratory Infection**—The organism chosen by Miller and Noble for inoculation was *Bacillus bovisepticus*, or snuffles bacillus, which belongs to the hemorrhagic septicemia group and is pathogenic for the rabbit They found that respiratory infection is favored by chilling the animals after they have been accustomed to heat It is suggested that any marked change of temperature predisposes to this infection, the severity of which varies with the amount of change, and that change from low to high temperature has an even more marked effect than that from high to low

53 **Circumscribed Dilatation of Artery**—Halsted's experiments showed that a partially occluded artery may dilate distal to the site of constriction The dilatation is circumscribed When the constriction has been either slight in amount or complete, dilatation has not been observed The dilatation was greatest when the lumen of the artery (the aorta) was reduced to one third or perhaps one fourth of its original size Dilatation or aneurysm of the subclavian artery has been observed twenty-seven or more times in cases of cervical rib The dilatation of the subclavian is circumscribed, is distal to the point of constriction, and strikingly resembles the dilatation which Halsted produced experimentally The genesis of the experimental dilatation and of the subclavian dilatation occurring with cervical rib is probably the same The experimentally produced dilatations and the aneurysms of the subclavian artery in cases of cervical rib are probably not due to vasomotor paralysis, trauma, or sudden variations in blood pressure Halsted suggests that the abnormal, whirlpool-like play of the blood in the relatively dead pocket just below the site of the constriction, and the lowered pulse pressure may be the chief factors concerned in the production of the dilatations Intimal surfaces brought, however gently, in contact by bands or ligatures do not, in his experience, unite by first intention, for the force necessary to occlude the artery is sufficient to cause necrosis of the arterial wall Bands, rolled ever so tightly, do not rupture the intima The death of the arterial wall having been brought about by the pressure of the band, a gradual substitution of the necrotic tissue takes place, the new vessels penetrating it from both ends

Journal of Laboratory and Clinical Medicine, St Louis

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56 Poisonous Proteins (To be continued) V C Vaughan, Ann Arbor, Mich —p 631
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58 *Cholesterin Retention as Factor in Cell Proliferation G Luden, Rochester, Minn —p 662
59 Present Status of Tuberculosis Chemotherapy L M DeWitt, Chicago —p 677
60 Sugar Content of Cerebrospinal Fluid in Health and Disease W M Kraus and G G Corneille, New York —p 685
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62 Color Reactions of Proteins and Their Split Products H W Emerson and J S Chambers, Ann Arbor, Mich —p 692
63 Physical Characteristics of Spinal Fluid in Various Diseases A Levinson Chicago —p 699
64 Delayed Negative Wassermann Reaction G M Olson, Minneapolis —p 704

57 **Pharmacologic Action of Nitrous Oxid**—The thought has occurred to Jackson that nitrous oxid might be used as a hypnotic He has tried repeatedly to compare the mild on-coming effects of the gas as breathed with a considerable proportion of oxygen with the physical and mental sensations present as one begins to fall asleep There is a very striking similarity, a marked feeling of tiredness and exhaustion, the limbs feel heavy and the eyelids tend to close One's mentality gradually sinks and there is difficulty in maintaining connected thought The natural inclination of the subject of the experiment is to lie down quietly and fall asleep The sensations remind one of the feelings of a child worn out by a long day's play when it lies down at night to sleep Sometimes Jackson has noted slight muscular twitchings or feeble jumping or convulsive moments These, he thinks, would probably not occur if the gas were administered very slowly with plenty of oxygen and a sufficiently long period of time

were used to bring on the action of the drug Suggestion appears to play a noticeable part in this action, for if one keeps perfectly quiet and at rest and tries to go to sleep, then the somnolent action of the gas is especially liable to be well marked It would appear that this matter of suggestion extends even to dogs For an animal which is petted and induced to lie down quietly and at complete rest may very often take the gas readily and peacefully fall asleep

58 **Cholesterin Retention as Factor in Cell Proliferation**—Proceeding on the working hypothesis that essential factors for the effectual progress of malignant proliferation are (1) the creation of a disturbance of metabolism which would lead to an accumulation of cholesterin, (2) an extraneous irritant and (3) the breaking down of the "lymphoid defence" Luden began in March, 1915, to give light treatment by Roentgen rays to a double suprarenalectomized spermophile (citellus tridecemlineatus) The results obtained were a marked change in the blood picture, there being an increase of normoblasts from 0 to 10 per cent in the course of six months, and the appearance of pathologic, "unripe" leukocytes together with proliferation in various tissues The experiment was then repeated on eight spermophiles, two were double and suprarenalectomized, three were double ovariectomized and three were used as normal controls The results already described were found to repeat themselves both in blood and tissue The proliferation of the various types of tissues is comparable to the proliferation of the small arteries in lungs and kidneys together with changes in the spleen resembling those found in 'Gaucher's spleen," which have been observed after forced cholesterin feeding

Luden has studied simultaneously in goats the effect of cholesterin feeding alone, the influence of the Roentgen rays alone and the influence of cholesterin feeding combined with Roentgen treatment Here also similar changes in the blood picture were observed Recently Luden made a series of observations on the cholesterin content of the blood of patients suffering from malignant disease The normal cholesterin value as given by Authenrieth and Bloor averages about 0 18 with a low limit of 0 14 per cent The high normal value has not yet been determined, but Luden found it as high as 0 27 per cent in apparently normal adults The cholesterin content of the blood of the patients studied varied from 0 254 to 0 71 per cent the average being 0 449 The patient having the highest cholesterin value of all showed not only symptoms of proliferation in the blood (109 normoblasts, fourteen megaloblasts in a count of 300 cells, a picture typical of pernicious anemia according to Ehrlich, atypical according to Grawitz) but malignant degeneration in a number of histologically diverse tissues as well Luden is convinced that the retention of cholesterin due to its insufficient conversion or defective elimination may be a primary factor in the etiology of malignant disease

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129 Modified Purse String Bladder Suture A H Peacock, Seattle, Wash—p 364
130 Pituitary Extract in Post Abortion Curetment H D Furniss, New York—p 365

108 Abstracted in The Journal, June 3, p 1818

110 **Precancerous Changes in Uterus**—It seems to Stone that the evidence in the literature and the material which he presents justifies the conclusion that as the positive identification of a malignant neoplasm cannot be made histologically until definite destructive capacity is recognized it seems reasonable to relate more definitely the other histologic criteria of cancer to the developmental stage of its growth In the study of uterine pathology there are seen numerous morphologic alterations of epithelial growth which differ but little from the regenerative activity of benign lesions, but which after a longer or shorter time show features that are differentiated with difficulty from malignant neoplasm The strongest support of this assumption is derived from the reproduction of types which are seen in the different stages of their progress There are the atypical features of a healing erosion, for example determined by the original type of the primary erosion—simple, papillary follicular, and we find the atypical types again reproduced in the different types of fully established uterine cancer In Stone's cases there are atypical healing erosions which are prototypes of either an epidermoid cancer or a papillary adenocarcinoma There are leukoplacias which are prototypes of adult acanthomata There are glandular hyperplasias which lead to adenoma or adenocarcinoma Finally, there are focal areas of leukoplakia, combined with adenomatous hyperplasia which may well furnish an origin for tumors designated as adenoacanthomata In short for each type of fully developed carcinoma there is a corresponding type of benign and intermediary change The decision regarding the proper therapeutic procedure in these cases should be assumed by a competent clinician

111 Abstracted in The Journal June 17 p 2033

112 **Syphilis of Body and Uterus**—In the case cited by Norris the changes were typical of those produced by syphilis elsewhere in the body The patient contracted syphilis six years ago, antisyphilitic treatment was discontinued nine months ago Menorrhagia and other symptoms of syphilis of the body of the uterus developed three months later The Wassermann test was at this time strongly positive The chief clinical symptom was the menorrhagia and the chief pathologic lesion the great softening and friability of the uterus together with the more typical changes usually produced by syphilis

113 Abstracted in The Journal, June 3, p 1818

114 **Syphilis—University of Michigan Clinic**—Out of 2 000 inpatients in the University Hospital excluding two services the proportion of syphilitics was 6 per cent The percentage of syphilis in 381 cases in the University Maternity was 47 as shown by the Wassermann reactions and expert physical examinations In eighteen cases of syphilis among the number examined only eight gave a history of syphilis In only the same number (eight) were there positive physical signs of syphilis As shown by the histories of the eighteen cases there is a greater chance of the syphilitic mother treated by salvarsan and mercury to give birth to a living, full-term child than where no treatment be given during pregnancy Out of 390 gynecologic patients subjected to the Wassermann test, twenty-two, or 56 per cent, gave positive reactions In only five of the twenty-two syphilitic patients was there a history of syphilis

116 Abstracted in The Journal, June 17, p 2033

119 **Transplantation of Articular End of Bone**—The material for Haas' report was obtained from seventy-five experiments on dogs, mostly in the early growing period He found that the epiphyseal cartilage line ceases to functionate after reimplantation and autotransplantation, either when transplanted by itself or with a small or a large piece of adjoining diaphyseal or epiphyseal bone, or even when transplanted as an entire intact bone The longitudinal growth ceases in every case The articular cartilage undergoes practically no changes after reimplantation In autotransplantation there occurs at times evidence of degenerative and regenerative changes The marrow of the transplant appears to undergo an early complete necrosis The trabeculae show early evidence of degeneration as is indicated by the loss of staining property of the nuclei The cortex shows an early loss of nuclear staining Following the first operation in the two-stage autotransplantation of the epiphyseal end of a bone, there is a considerable disturbance in the function of the epiphyseal cartilage line, even though the epiphysis is not separated from the surrounding tissue

The vitality of the various components of bone after transplantation is directly related to the ability of that part to withstand the loss of its vascular supply From these experiments and the results in general on transplanted bone the following conclusion is offered regarding the fate of bone after transplantation Although each part of transplanted bone possesses the power to regenerate independently and without the aid of neighboring bone, this autonomous newly formed tissue does not possess that property which is necessary for a continued existence, and it will ultimately entirely disappear Some additional stimulus is needed and such conditions are only obtained when the transplant is in direct contact with normal growing bone It is possible that certain chemical or physiologic stimuli are supplied by the living intact bone, after which the regenerated bone on account of these additional factors is able to persist permanently Undoubtedly some definite osseous elements from the bone of the host invade the transplant and either replace the temporary bone or give to it certain requisites for its perpetuation Although function may play a factor in the development of bone it is not of prime importance in determining the permanency of that tissue Haas is convinced that the differences of opinions of the various investigators is in part due to the failure to allow sufficient time to elapse before drawing final conclusions, as well as to take into account the influence of different environmental conditions on the transplant from both young and old animals

128 **Unusual Hydrocele Content**—When Eduque operated on his patient a sac was encountered in the scrotum, containing the stomach, cecum, about 6 feet of jejunum and duodenum all plastered together During manipulation one loop of intestine was incised This was sutured with linen The appendix was found to be big and long and bound to the posterior surface of the cecum by adhesions

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

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1 Roentgenography of Bronchial Lymph Nodes W Overend and C Riviere—p 73
2 Renal Calculi, Report of Case C T Holland—p 83

Brain, London

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3 Electric Reactions of Muscles Before and After Nerve Injury E D Adrian—p 1

4 *Disturbances of Vision From Cerebral Lesions With Special Reference to Cortical Representation of Macula C Holmes and W T Lister —p 34
5 *New Familial Infantile Form of Diffuse Brain Sclerosis K Krabbe —p 74
6 Acute Poliomyelitis F E Batten —p 115

4 **Disturbances of Vision from Cerebral Lesions**—According to Holmes and Lister the upper half of each retina is represented in the dorsal, and the lower in the ventral part of each visual area The center for macular of central vision lies in the posterior extremities of the visual areas, probably on the margins and the lateral surfaces of the occipital poles That portion of each upper quadrant of the retina in the immediate neighborhood of, and including the adjacent part of, the fovea centralis is represented in the upper and posterior part of the visual area in the hemisphere of the same side, and vice versa The center for vision subserved by the periphery of the retina is probably situated in the anterior end of the visual area, and the serial concentric zones of the retina from the macula to the periphery are probably represented in this order from behind forward in the visual area

5 **New Infantile Form of Diffuse Brain Sclerosis**—The so-called diffuse sclerosis of the brain in children are divided by Krabbe into at least three quite distinct types (1) A syphilitic form, (2) Schilder s encephalitis periaxialis diffusa, (3) a familial infantile form of which five cases are discussed in this paper, the literature probably contains one other case This form shows the following characteristics, it is usually a familial disease, it sets in somewhat acutely in about the fifth month in a child who up to then has been quite healthy, it progresses on a chronic course, ending with death, five to six months after the onset, universal rigidity of the musculature violent tonic spasms, probably causing pain and brought on by touching or noise form characteristic symptoms As a rule, nystagmus is present, and in the latter stages atrophy of the optic nerve Periodic elevations of temperature occur without perceptible cause, outside the central nervous system Finally, extensive paresis and pronounced debility close the scene

The pathologic anatomic findings are A marked hardness of the white substance of the brain without alteration of its shape Microscopic examination of three cases showed relative intactness of cortex and the basal ganglia, the nervous centers of the brain and of the spinal cord, destruction of the medullary sheaths and axis cylinders throughout the white substance of the cerebrum (a 2 mm layer, however, is preserved immediately under the cortex) Complete destruction of the white matter of the cerebellum and degeneration of the spinal nerve tracts are present The destroyed tissue is replaced by dense fibrillar glia, in which are seen a considerable number of variously shaped glia cells mostly protoplasmic, the vessel sheaths are infiltrated with fatty granule cells and other apparently gliogenous scavenger cells There is a total want of new formation of vessels or infiltration of the vessel sheaths with plasma cells lymphocytes or leukocytes Krabbe is of the opinion that the affection must be regarded as a purely degenerative and not as an inflammatory process The disease presents a certain relationship to Pelizaeus-Merzbacher s disease aplasia axialis extracorticalis congenita on one side and to Tay-Sachs form of familial amaurotic idiocy on the other side In other respects, however it differs conspicuously from both these groups

British Journal of Children's Diseases, London

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7 Congenital and Acquired Scleroderma in Childhood E A Cockayne —p 225
8 Case of Hemihypertrophy with Postmortem Examination R Hutchison —p 233
9 Gangrene of Leg Following Diphtheria E B Gunson —p 237

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11 Distant Effects of Rifle Bullets With Special Reference to Spinal Cord J S Fary —p 212
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14 Trismus During Serum (Antistreptococcus) Sickness (Septic Finger) R F Bolt —p 218
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20 Injuries and Destructive Effects of Aeroplane Bombs H V Wells and H G Anderson —p 252
21 *Appliance for Use in Severe Injuries of Upper Extremity G Arnold —p 254
22 Simple Method of Repairing Defects of Scalp C Wallace —p 256
23 *Simple Method of Putting Up Fractures in Region of Elbow Joint in Fully Flexed Position L C Rivett —p 256

17 **Cyst of Intestine**—The patient whose case is reported by Bolton and Lawrence was a baby 3 months old The child was born at full term, and was breast-fed till the age of 5 weeks From birth it vomited a little after its feeds, the milk being returned unchanged At the end of five weeks this symptom becoming worse, the child was weaned and various kinds of foods administered without any relief to the vomiting Wasting supervened after the first week The bowels were from birth very constipated, being opened about once in four days until the end of the fourth week, when eight days elapsed on one occasion without an action occurring The child died about two weeks after she was first seen by the authors A necropsy was performed Adhering to the terminal part of the ileum was a cyst, measuring 3 cm by 2 5 cm ovoidal in shape, with its long axis parallel with that of the bowel The cyst lay on the mesenteric aspect of the ileum between the layers of the mesentery, its cavity having no communication with the lumen of the intestine The terminal portion of the ileum, as it coursed over the cyst, was flattened against the convex surface of the latter and stretched transversely, consequently the lumen of the bowel was linear in transverse section and its opposed walls were held in contact firmly The cyst extended slightly beyond the lower limits of the ileum its lower pole causing a low convex projection of the wall of the cecum just beyond the ileocecal valve

18 **Gastroptosis Treated by Gastropexy**—The three cases detailed by Connon seem worthy of being placed on record for the following reasons The patients were the subjects of well marked gastroptosis, but (1) were males, (2) they were not neurasthenics, (3) occupation appeared to be a predisposing factor in the causation of their complaint They were all workmen who over long periods had from the nature of their daily employment, to lift heavy weights a considerable amount of strain being thereby put on their abdominal muscles and viscera, (4) great benefit has accrued from the operations as reported in one case after three years and in another one year The third case is comparatively recent

19 **Perforation of Gastric Ulcer**—Few reported cases of congenital diaphragmatic hernia have been diagnosed during life A sign which in Gordon s case was of interest and which may be of some diagnostic value was the peculiar attitude the patient adopted He stood or sat up in bed, with the body bent well forward and the knees bent He refused to lie down, stating that the pain was increased when he tried to do so The attitude appeared to be one which most relieved the tension of the diaphragm

21 **Appliance for Use in Injuries of Arm**—Arnold employed a rectangular plate about 45 by 38 cm usually a plate of perforated aluminum 4 to 5 mm in thickness This plate, splint tray or supporting appliance can be fashioned from other material than aluminum, provided the material selected is nonabsorbent readily cleaned sufficiently rigid as not to bend in use, and light in weight One corner of the splint is fitted close into the axilla, and here the upper arm is secured to the plate by means of a fold of gauze passing through holes in the plate on either side of the limb just

below the shoulder Extension is obtained in part by the weight of the limb below the fracture, but is assisted by the tension of the pad and band at the bend of the elbow, which secures the arm to the lower posterior corner of the support

A cushion in the axilla is interposed between the splint and the thorax, the cushion being kept in position by attachments which pass over the opposite shoulder The plate and limb together are well slung up and in the early stages of very severe injuries the patient should be in bed with the splint in an inclined position resting on a firm pillow If there is a wound on the surface of the limb toward the plate the latter should be fenestrated at the corresponding area in order to allow the necessary frequent dressings to be done without removing the injured member from its supporting splint In the case of fractures of the forearm with shortening and displacement of the fragments, the splint is applied in the way already described, but extension and counter extension will be required, and the splint affords an efficient and easy means for this This splint, it is said, affords a very complete degree of rest to the entire musculature of the upper extremity, and that without being burdensome by any exaggerated restraint imposed, for while it provides very perfect immobilization, it opposes little restriction to movements of other parts of the body

23 **Fractures of Elbow Joint Put Up in Fully Flexed Position**—Two strips of adhesive plaster are required with Rivett's method each about 1 foot long and from 1½ to 2 inches wide The first strip is used to maintain the forearm fully flexed on the upper arm It is so placed as to encircle the arm and forearm just below the fold of the axilla, and immediately above the wrist It should be sufficiently long to overlap about 1 inch, and, if applied direct to the skin it will not tend to slip down in the direction of the elbow The second strip is used to support the arm and hand, and is applied to the back of the forearm and hand, extending only as far as the first strip The other end is then placed over the same shoulder and fixed to the back

Lancet, London

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24 Rivers as Sources of Water Supply A C Houston—p 311
25 *Effect of Addition of Fresh Human Blood Serum to Artificial Media L S Dudgeon, F Bawtree and D Corbett—p 314
26 *Three Cases of Entameba Histolytica Infection Treated with Emetin Bismuth Iodid G C Low and C Dobell—p 319
27 *Intravenous Injection of Oxygen Gas as Therapeutic Measure F W Tunnicliffe and G F Stebbing—p 321
28 *Gluteal Fold in Sciatic Neuritis H Carlill—p 323
29 Case of Dilatation of Hepatic Flexure of Colon W J Morrish—p 325
30 Shiah Pilgrimage and Sanitary Defences of Mesopotamia and Turco Persian Frontier F G Clemow—p 333

25 **Human Serum and Artificial Media**—The addition of normal fresh human blood serum to artificial media in the culture of micro-organisms according to Dudgeon and his associates has the following effects It provides a most favorable medium for growth in cases in which culture under artificial conditions may otherwise fail It greatly increases the amount of growth in those media to which it has been added compared to those prepared without it It stimulates the growth of pathogenic organisms as opposed to nonpathogenic It prolongs the life of organisms which are prone to die out under artificial conditions as shown in the case of the meningococcus It greatly facilitates the culture of the diphtheria bacillus, and in its combination with different media helps to illustrate all aspects of the morphology of this organism It exercises considerable influence on other organisms of variable morphology tending in the case of the pneumococci to reproduce the true type as found in the body fluids It profoundly alters the fermentation reactions of the streptococci and pneumococci, tending to obliterate the finer differences between types or the differences due to particular environment

26 **Entameba Histolytica Infection Treated with Emetin Bismuth Iodid**—Clinical experience has convinced Low and Dobell that emetin bismuth iodid is far more efficacious than emetin hydrochlorid, given hypodermically, in removing the cysts from the feces of chronic carriers So far the drug has been given in a single dose of 3 grains, this representing a little more than 1 grain of emetin—once a day in the evenings with the last meal, for five days and never on an empty stomach, as was customary with ipecacuanha

27 **Intravenous Injection of Oxygen**—The result of Tunnicliffe and Stebbing's observations is that oxygen gas can be introduced into the veins in quantities from 500 to 1,000 c c at the rate of from 600 to 1,200 c c per hour Cyanosis and the dyspnea attending it are rapidly relieved, the rate usually begun with is 500 c c per hour The more cyanosed the patient, the better is a rapid rate tolerated As the cyanosis is reduced the rate should be diminished During the administration the pulse should be watched and the heart auscultated frequently Irregularity in a previously regular pulse or increased irregularity in a previously irregular pulse is an indication to cease the injection This phenomenon is preceded by a soft systolic murmur heard over the area of the tricuspid valve, and this murmur should be listened for The best method is to inject the gas for periods of from ten to fifteen minutes with pauses of two or three minutes between, injecting during these pauses just enough gas to prevent clotting in the cannula The ideal case for reaping benefit from this treatment is one in which the cyanosis and dyspnea are due to acute respiratory difficulty and in which the heart is fairly healthy The object of this preliminary note is not to indicate the specific pathologic conditions in which the intravenous injection of oxygen should be used, but simply to point out that in those cases in which the inhalation of oxygen either cannot be practiced or gives inadequate relief, the intravenous method of oxygen administration, if carefully carried out, is available and will give therapeutic results

28 **Gluteal Fold in Sciatic Neuritis**—Carlill calls attention to a fact in the diagnosis of sciatic neuritis It is that the gluteal fold may be very poorly developed in this condition Commonly it is absent altogether, and this may be the case whether the affection is unilateral, bilateral, or part of a multiple peripheral neuritis

Medical Journal of Australia, Sydney

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32 Headache From Otorhinologist's Point of View W N Robertson—p 38

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36 Genito Urinary Cases Treatment of Ureteral Fistula Following Ureterolithotomy, Extensive Ureterocele with Vesical Calculus Two Stage Prostatectomy, Bilateral Renal Decapsulation for Post Eclamptic Suppression of Urine, with Recovery, Nephrectomy for Hypernephroma S H Harris—p 69

Quarterly Journal of Medicine, London

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37 *Penetrating Wounds of Lung and Pleura, Report of Cases R D Rudolf—p 257
38 Researches on Perfused Heart Some Factors of Cardiac Mechanism Illustrated by Reference to Certain Actions of Barium and Digitalis W Burridge—p 271
39 Thrombo Angeitis Obliterans (Nonsyphilitic Arteritis Obliterans of Hebrews) F P Weber—p 289
40 *Four Carbon Atom Acids of Diabetic Urine W H Hurtley—p 301
41 Case of Diffuse Fibromyoma of Esophagus, Causing Dysphagia and Death A J Hall—p 409
42 Trench Fever and Its Allies W P Herringham—p 429
43 Cases of Cerebrospinal Fever Treated at Isolation Camp Casualty Clearing Station A Presslie and W E Lindsay—p 437
44 Trench Fever G H Hunt and J W McNee—p 442

37 **Penetrating Wounds of Lung and Pleura**—Rudolf emphasizes the fact that penetrating wounds of the chest are by no means always fatal, and apparently hopeless wounds, judging from their anatomic positions in the chest, may give rise not only to no danger symptoms but almost to no discomfort A man may be shot through the chest and scarcely know it at the time nor have symptoms or signs afterward On the other hand, what may appear to be almost a safe

wound, anatomically considered, may quickly end in death The wound of entrance may not be in the chest at all and yet terrible and even fatal injury to the chest supervene Pneumothorax is common after penetrating wounds of the chest Usually, but not always, there is blood as well as air in the pleura, and very commonly, but not always, infection of the pleura follows The pneumothorax usually happens at the time of the injury, but may occur days after it If the air enters the pleura from the external wound, infection with pus-forming organisms is much more apt to occur than if the wound which admits the air is in the lung As a rule the axiom holds good that the sudden occurrence of pneumothorax is accompanied by severe dyspnea, but there are exceptions to this As regards the physical signs of pneumothorax, the textbook descriptions mostly hold good, but the coin sound (bell sound) is very elusive In many cases it is not present at all, although the diagnosis of pneumothorax is confirmed by the Roentgen ray In others it comes and goes

The percussion note is usually hyperresonant, but may be almost dull, in cases in which the air is under pressure The breath sounds are always very distant and vesicular, with one exception, that is, in cases in which there is a large opening into the collapsed lung Here the type of breathing may be most characteristically amphoric and often very loud The vocal fremitus and resonance are usually present to about the normal extent and the latter may have a resonating tone which is very special in character Tinkling rales are sometimes heard, of a peculiarly musical character Hippocratic succussion can easily be elicited where fluid also is present, but as a rule the patients are too ill to permit of the shaking In most cases of pneumothorax, in cases in which the air has come from the lung and infection is absent or not severe, the air is absorbed with a rapidity that greatly varies In those instances in which the air has come through the chest wall and especially where the opening remains, infection is nearly always a sequence and the case becomes one of pyopneumothorax, and the only hope is free drainage

In hemothorax the bleeding here usually is from the lung, but may be from a vessel in the parietes The greatest danger that threatens these cases is acute infection of the blood in the pleura The infection may be received from the lung, from the skin surface, or from foreign body carried in with the missile The physical signs of hemothorax are, generally speaking, those of fluid in the pleura As regards the treatment of sterile or mildly infected cases of hemothorax, if the amount of blood be small, say not reaching above the angle of the scapula, and there be few or no symptoms of infection the case may well be left to nature In cases in which the bleeding has been greater than this and there is displacement of the heart, then something more than expectant treatment seems to be called for When the lung is traversed by pieces of shell or shrapnel the laceration is very extensive, far more than would be expected from the size of the foreign body In many cases the missile carries in with it pieces of clothing which are found at operation, or very likely at postmortem examination Sepsis being now almost certainly present these cases usually do badly and their only hope is free drainage

40 **Four Carbon Atom Acids of Diabetic Urine**—To determine the sugar nitrogen aceto-acetic acid, oxybutyric acid and ammonia in a few cases Hurtley says is not sufficient All these determinations should be made and the blood and alveolar carbon dioxid the bases and the acids of the urine, the nitrogen and fat of the feces should be determined as well in many cases Not only so, the diet should be analyzed with the view of determining the amount of bases and of acid producing substances it contains and what is equally important the nature of the protein which is being given to the patient

Archives de Medecine des Enfants, Paris

July XIX No 7 pp 337 392

45 *Present Status of Knowledge Concerning Meningitis (Points de vue dans l etude generale des meningites) E Suñer (Valladolid)—p 337
46 Paroxysmal Hemoglobinuria from Chilling (Etude sur l hemoglobinurie paroxystique a frigore) E Gorter and A. A Huinink—p 363
47 Pseudo Tetanus (Le pseudo tetanus d Escherich envisagé comme entite nosologique) A A Santos Moreira—p 368
48 Infectious Origin of Duodenal Ulcer J Comby—p 375

August No 8, pp 393 448

49 *Acute Accidents and Syndromes from Disease of the Brain Meninges and Spinal Cord (Accidents et syndromes aigus meningo encephalo medullaires) L Guinon and Pouzin—p 393
50 *Prophylaxis of Tuberculous Meningitis and of Miliary Tuberculosis in Children L Jeanneret (Lausanne)—p 414
51 Three New Cases of Infantile Scorbutus J Comby—p 422
52 Pseudotetanus Merely One Form of Tetanus (Un nouveau cas de pseudotetanus) E Gorter (Leyden)—p 426
53 *Precocious Maturity in Girls J Comby—p 428

45 **Study of Meningitis from Different Standpoints**—Suñer discusses meningism, serous meningitis and tuberculous and epidemic meningitis He cites typical cases in children to illustrate each point he mentions to emphasize the differentiating features He has found that serous meningitis may come on suddenly, with convulsions and prove fatal in a few hours, or chronic hydrocephalus may be its only manifestation for a long time There is no certain sign of tuberculous meningitis except discovery of tubercle bacilli in the spinal fluid, and this is a difficult matter as they are always scanty It may be necessary to examine the precipitate thrown down cold, by the end of twenty-four hours, spreading it carefully on a slide Negative findings do not exclude it, and he is convinced that errors are often made in its diagnosis The skin reaction to tuberculin cannot be relied on, he says as this is usually negative in this type of tuberculosis Some of the "cured" cases thus labeled were probably cases of infantile paralysis Epidemic meningitis often appears in attenuated and atypical guise, especially in infants Mere clinical examination is not sufficient to exclude other causes for convulsions The spinal fluid may exceptionally be limpid through the entire course of the disease, notwithstanding that meningococci may be numerous He has found leukocytosis the rule with from 60 to 80 per cent polynuclears The precipitin reaction, agglutination, fixation of complement, and bacteriologic search for the meningococcus help to clear up all doubt With negative findings, cultures should be started Inoculation of rabbits in the subarachnoid spaces always proved negative in his experience In examining a patient it is necessary to exclude meningeal inflammation secondary to disease in the eye, nose, maxillary and frontal sinuses, lungs, or digestive apparatus Hypostatic pneumonia frequently accompanies epidemic meningitis, and is liable to prove misleading as in the case of a boy of 6 who developed fever and prostration forty-eight hours after a fall from a toy wagon No sign of fracture could be found but there was impaired resonance over the base of both lungs and no distinct meningitic symptoms Lumbar puncture the fifth day revealed meningococci

The prognosis depends in large measure on the character of the epidemic, statistics showing wide variations, and the mortality is high even with serotherapy Patients still die under it, although the spinal fluid usually clears up and the clinical picture shows improvement for a time after introduction of the serum In the cases with favorable outcome under serotherapy, Suñer was never convinced that this had been the unmistakable result of the specific action of the serum The lavage of the subarachnoid space attracts active polynuclears to the spot, and this alone may explain the benefit, without assuming a specific action from the serum Physiologic salt solution might answer as well

Suñer says in conclusion that those who advocate injecting the antiserum directly into the ventricles fail to mention the dangers of such a procedure He describes a case in which symptoms apparently called for it as a last resort Necropsy showed that the needle had entered the lateral ventricle properly but there was no fluid in either ventricle It had accumulated around the bulb and below the cerebellum and contained meningococci The child of 4 collapsed and stopped breathing after 18 c c of the tepid antiserum had been injected very slowly into the ventricle Twenty minutes elapsed before respiration and pulsation were restored and rhythmic traction of the tongue had to be kept up for another hour before the child was breathing regularly She was unconscious for hours afterward and died five days later after alternating periods of improvement and aggravation

49 **Curable Acute Brain, Meninges and Spinal Cord Trouble in Children**—Guinon and Pouzin report sixteen cases of acute brain and nervous troubles developing in children most of which they are unable to classify with the ordinary syndromes With a meningitis, even with malformed cells and lymphocytosis, if we cannot find the tubercle bacillus we are justified in reserving the prognosis in the hope of a spontaneous recovery Such have been comparatively numerous in the Paris hospitals recently In two of the cases reported, after a brief febrile period, with nightmares, complete incoordination developed, lasting for a week or two, with final recovery The children could move their legs while reclining but collapsed on the floor when stood up on their feet Infantile paralysis in an atypical form was evidently responsible for some of the other cases The children were left with slight sequels During the fall of 1914 Guinon knew of over fifty cases of infantile paralysis, and reports here a few cases in older children that terminated in recovery The acute amicrobian meningitis with mononuclear reaction subsided, leaving scarcely a trace, although the children had tuberculous glands In all the cases cited lumbar puncture was applied repeatedly, and mercurial treatment was given when there was suspicion of inherited syphilis *In the last case described an injection of anti*meningococcus serum seemed to aggravate the condition The diagnosis had been advanced tuberculous meningitis in a girl of 11 The high fever was combated with wet packs, and after a period of delirium alternating with prostration, convalescence set in Three weeks after defervescence the child developed fever and total inability to move the legs, any effort to do so causing severe pain This lasted only two days, and then all the symptoms disappeared Except for impetigo on head and neck, the child seemed quite normal two weeks later

50 **Prophylaxis of Tuberculous Meningitis**—Jeanneret insists on the necessity for impressing on every pregnant woman where there is a case of "open" tuberculosis in the immediate family that the coming child must be separated at once and kept entirely away from contact with the tuberculous parent or other relative Any furtive kiss or brief visit compromises the success of the sacrifice As soon as the child has passed the period when generalization of tuberculous infection is most menacing, that is, when it reaches its eighteenth or twentieth month, it can be restored to the family The risk for the child is comparatively small by that time As it is a question of life or death for the infant, the transient separation can generally be arranged when the parents have the matter presented to them in the right light Jeanneret thinks that the ideal is to organize an institution where the newborn children of indigent parents could be segregated from contact with the tuberculous The relatives could visit the baby regularly and inspect its progress through a glass partition Switzerland has already several such asylums for the newly born, and he regards them as an indispensable adjunct to the antituberculosis dispensaries A number of typical cases are cited showing the necessity for removing the newborn at once and the evil that results when this is neglected or delayed

In case the nursling is already infected, we must act quickly and act vigorously, and his reliance is on tuberculin He gives it by the Mantoux technic, intradermally This imitates Nature's processes by the localization, it creates in the child's skin an artificial focus, corresponding to a spontaneous focus without living bacilli, from which the tuberculin is gradually absorbed and gets into the general circulation and thus stimulates the production of the specific reactions of defense This artificial focus is maintained by repeated injections of tuberculin, and in his experience it seems to have been fully as potent as a bone or gland lesion in protecting against generalization of the infection Intradermal injections are simple and easy The skin is pinched up into a fold, and the very fine needle is introduced, parallel to the surface He injects 0 0 c c of a 1 1,000 solution, repeating the injection every third day and increasing the strength very gradually till 0 1 c c of a 1 10 solution is reached in time The local reaction is less in infants than in older children A febrile reaction is common, but brief As the child grows older, it manufactures its own tuberculin in its tuberculous glands, and does not need artificial tuberculinization Jeanneret is confident that he has saved certain infants by these prompt measures, and does not hesitate to recommend them even when the prognosis is quite grave

53 **Precocious Maturity in Girls**—Comby reviews what has been written recently on this subject, especially F Beekman's study of the question last year

Bulletin de l'Académie de Médecine, Paris

August 1, LXXVI No 31, pp 89 106

54 *Serotherapy of Typhus (Resultats de la serotherapie dans le traitement du typhus exanthematique) C Nicolle and L Blaizot—p 95

55 Typhoid Agglutinins in the Cerebrospinal Fluid (Transsudation des agglutinines typhiques dans le liquide cephalo rachidien de l'homme) F G Daumezon—p 101

56 *Kidney Functioning in Soldiers on Active Service (Le fonctionnement renal chez les troupes en campagne et ses rapports avec les nephrites de guerre) P Ameuille and J W MacLeod—p 103

54 **Serotherapy of Typhus**—Nicolle and Blaizot inoculated every three or four days horses and asses with an emulsion of organs from guinea-pigs conserving the virus of typhus They selected the most virulent and the least toxic of all the organs, namely, the suprarenals and the spleen They report here the results in thirty-eight cases of typhus fever treated with the antiserum derived from an ass or a horse that had been inoculated, respectively, 132 and 98 times with this emulsion There was only one death among the thirty eight patients and an intercurrent affection during convalescence from the typhus was responsible for this fatality In 20 per cent of the cases the disease seemed to be aborted and in all, the usual delirium, stupor and prostration failed to develop or else rapidly retrogressed The other nervous symptoms subsided also and the general condition materially improved According to recent writers, typhus runs a two weeks' course, but under serotherapy defervescence occurred from the sixth to the twelfth day in a number, and the average for all was 11 61 days There were no complications in any case The dosage ranged from 10 to 20 c c a day, by subcutaneous injections

56 **Kidney Functioning in Soldiers on Active Service**—Ameuille and MacLeod were much impressed with the frequency of spontaneous acute nephritis among the soldiers in the trenches To investigate the causes of this susceptibility of the kidneys, they have examined the urine from those still apparently healthy They found albuminuria in 1 87 per cent of 1,175 infantry soldiers in an active sector, and 1 31 per cent in 686 in a sector quiet at the time Among 2 229 British troops from two to eight days after serving their turn in the trenches there were 4 73 per cent unmistakable cases of albuminuria, and 3 53 per cent among 311 still in the trenches Fully 2 91 per cent of 2,069 English male hospital attendants presented albuminuria, and 10 12 per cent of 553 new recruits after six months of military training in England Among 231 attendants at the French base hospitals less than 1 per cent had albuminuria and these were old chronic cases of nephritis Reexamination a week or so later showed that in men under 30 the albuminuria was transient, subsiding as the men rested In the older men it seemed to be a warning of impending or already installed nephritis Tests of the blood pressure did not reveal any tendency to a pathologic influence on arterial tension from trench life The urine collected from ten men in the French trenches averaged 1,200 c c with 12 35 gm urea and 9 41 gm chlorids Parallel examination of the urine from fifteen men in the English trenches showed a daily average of 1,830 c c with 45 gm urea and 10 34 gm chlorids Control examination of soldiers not in the trenches showed the same high figures for the British in comparison to the French, one English soldier excreting 73 4 gm urea in the twenty four hours, and all averaging 50 per cent above the French soldiers

Journal de Médecine de Bordeaux

August XXXVII No 10 pp 189 208

57 *Differentiation of Strangulated Diaphragmatic Hernia J Vitrac —p 189
58 Strophanthus in Therapeutics Indications and Contraindications (Strophantus et strophantine) H Mallie —p 192
59 The Action of the Interossei Muscles L Masse —p 198

57 **Diaphragmatic Hernia**—Vitrac relates an instructive case of ileus which was retrospectively explained as the result of strangulation of the bowel in a diaphragmatic hernia Necropsy showed that 'part of the large intestine was the old and habitual guest of the hernia while a loop of small intestine may have been an occasional guest" Nothing was known of the anomaly, the robust young man complaining merely occasionally of colic in the stomach region Finally a second loop of small intestine found its way into the hernia, and strangulation ensued The pain and tenderness in the epigastrium were relieved only when the man sat up and bent forward The abdomen was moderately distended, with relative indolence to palpation There was no vesicular murmur on the left side but the resonance was not much modified the incarcerated loops of intestines responding with a tympanic resonance in this case although depending on the contents of the bowel the findings in such a case might vary to complete dulness It is necessary to open the chest to get at the hernia from above as a rule, it is impossible to suture it through a laparotomy opening The lung might be drawn down to reenforce the suture In conclusion Vitrac exclaims that the surgeon is not a miracle worker, his success with strangulated hernia depends on the internist s calling him in time In the case described five days had elapsed after strangulation had occurred before the laparotomy, and the strangulation then was ascribed to constricting bands, the hernia not being discovered until after death The condition was so grave at the time that exploration was restricted to the minimum and the diaphragm was not palpated

Lyon Médical

August CXXV No 8 pp 309 368

60 *The Iodin Reaction in the Urine Its Importance for the Prognosis of Tuberculosis and in Diagnosis of Typhoid Fever (Sur une nouvelle reaction urinaire) M Petzetakis —p 309

60 **The Iodin Reaction in the Urine as Sign of Typhoid and as Grave Omen in Tuberculosis**—Petzetakis reports after a year s test of this reaction that it does not occur in normal conditions He says that it is negative likewise in 'closed' pulmonary tuberculosis but positive findings are encountered in open' tuberculosis tending to a fatal outcome It is also constant in typhoid fever Here it becomes positive so early that it aids in differential diagnosis of the disease Like other biochemical reactions it is sometimes positive in other pathologic states accompanied by high temperatures but not in a way to detract from its semeiologic value in tuberculosis and typhoid The technic is simplicity itself merely the addition of two or three drops of a 5 per cent alcoholic solution of iodin or of the aqueous solution made with 1 gm metallic iodin and 2 gm potassium iodid to 300 gm distilled water The drops are dropped from a dropper on the surface of the urine about 15 or 20 c c in a test tube After waiting a little while the walls of the test tube are given a few shakes in such a way that the iodin solution mixes with the urine to form a column of about 2 cm After waiting a while the upper layer of the urine in the test tube thus mixed with the iodin is compared with the lower layer of the urine in the tube or with urine in another tube The reaction is positive when the upper layer shows a change of tint to a golden yellow It is negative if the urine shows no change Or 5 c c of urine can be placed in each of two test tubes and three or four drops of the alcoholic solution be added to one and the tint then compared When the reaction is positive the urine retains the new tint for one, six, twelve or even more hours this persistence of the color reaction is characteristic. The tint may even become more pronounced after the first few hours The reaction is not modified by the presence of sugar acetone albumin or other pathologic elements, nor by heat ether benzine, chloroform or toluol but addition of lead acetate to the urine prevents the reaction from taking place The research on this iodin reaction was done in Greece and at Lyons, France, during the last year

Paris Médical

August 12 VI No 33 pp 133 148

61 *Prophylaxis of Contagious Disease from and to Soldiers on Furlough (Hygiene du soldat permissionnaire a Paris) Borne —p 133
62 *Drip Drainage of Bladder after Operations on the Kidney (Drainage au goutte a goutte uretero vesico urethral dans les nephrotomies et pyelotomies) M Devroye —p 136
63 *Epidemic Meningitis C Rosenthal —p 140
64 *Thread Drainage of Suppurating Arthritis (Nouveau mode de drainage des plaies articulaires de guerre et des arthrites purulentes communes du membre superieur) H Chaput —p 143
65 The High Cost of Living (Le prix de la vie) M Labbe —p 145

61 **Hygiene of Soldiers on Furlough**—Borne relates that one of the unprecedented features of the great war now is that soldiers are constantly coming and going across the country, the wounded are sent back to the home zone to convalesce and others journey to take their places in the ranks, while the men are given frequent one-day and six-day leave of absence to enable them to visit their families There is a constant network of passing and repassing men, and the danger of their spreading infection is great, bringing home germs and infested vermin from the war zone and carrying back with them disease contracted at their homes or on the way This raises a host of new problems and he discusses how they can best be solved

62 **Drip Drainage After Nephrotomy**—After cutting off the tip of a No 12 or No 14 Nelaton catheter, Devroye introduces it through a longitudinal incision in the kidney pelvis fastening it so the lower end is suspended in the funnel formed by the entrance to the ureter The catheter is connected above with a drip irrigator ensuring a flow of some suitable antiseptic He has found a fivefold dilution of Dakin's solution effectual in severe cases of infection of the kidney pelvis, but a 1 10,000 solution of potassium permanganate is generally sufficiently active By this simple method of drip irrigation of the kidney proper or of the pelvis, the infection is combated the region is drained by the natural routes the ureter is dilated by the accumulating fluid so that the danger of stricture after removal of a *concretion* is reduced and there is no chance for ascending infection But the chief advantage of the method is that the wound heals without production of a fistula He gives illustrations of the technic with both pyelotomy and nephrotomy, *and* reports three cases showing the prompt and complete healing in from one to three weeks after an operation for pyonephrosis a calculus in the kidney pelvis or uronephrosis *To* control the draining he colors the disinfecting fluid with a little methylene blue

63 **Epidemic Meningitis**—Rosenthal found that certain strains of meningococci took *the gram stain in* some recent cases of meningitis He also calls attention anew to the way in which meningococci set up a typical focus of inflammation in the adenoid tissue of the throat (See abstract 49 in The Journal 1916 lxvii 473) He reiterates further that few as yet realize how the pathology of the rhinopharynx dominates that of the entire respiratory passages Examination of the nasal sinuses is an indispensable part of every examination of the lungs *and* it is folly to separate into special fields the nose and lungs when they represent merely different stages of disease of the air passages

64 **Drainage of Wounded Joints**—Chaput applies the principle of thread drainage in treatment of badly shattered large joints and here gives the technic for this draining resection" in detail for the shoulder, elbow and wrist

Presse Médicale, Paris

August XXII No 4 pp 337 344

66 *Ionization Treatment of Adherent Cicatrix with or without Contracture. M Chiray and G Bourguignon —p 337
67 *Glycuronuria and Its Variations P Gautier —p 339

August 7 No 44 pp 345 352

68 *Methods of Amputation Considered from Point of View of Fitting Artificial Limb A Depage —p 345

69 Devices to Overcome Radial and Popliteal Paralysis (Appareils de suppleance dans les paralysies du radial et du sciatique poplite externe) J Privat and J Belot—p 349

August 10, No 45, pp 353 360

70 Treatment of Suppurating War Wounds of the Elbow (Traitement des arthrites suppurees du coude par plaie de guerre) L Berard—p 353

71 *Soldier's Heart (Le rythme cardiaque chez le soldat combattant) L Binet—p 356

66 **Ionic Medication in Treatment of Deforming Scars**—Chiray drives potassium iodid directly into the cicatricial tissue by means of the negative electrode of a constant current, and reports surprisingly fine effects on the vicious cicatrix itself and on the resulting contractures As the cicatrix softens and separates from the adjacent tissues, the underlying tissues, nerves, etc, have approximately normal conditions restored The mechanical and physiologic relief thus afforded permits mobilization and the cure of contracture of the hysteric and reflex types

67 **Glycuronuria as Index of Liver Functioning**—Gautier's experience confirms that of Roger, Chiray and others in regard to the importance of the glycuronic acid content of the urine as a sign that the liver is doing its work properly In 100 healthy persons examined, the glycuronic acid content was pronounced, and a dose of camphor was followed by little if any increase in the glycuronuria on an average diet The fasting healthy subject showed a slight increase after the camphor test In cases of heart or kidney disease with insufficiency of the liver there was always a notable transient elimination of glycuronic acid after ingestion of the test dose of camphor In fifteen diabetics the camphor test always proved negative In advanced cirrhosis the liver is unable to respond to the camphor test Roger believes that the glycuronic acid is manufactured by the liver to combine with certain toxic bodies in the organism and thus eliminate them This assumption is confirmed by a recent case of attempted suicide with a preparation of phenol The urine was black and showed the highest proportion of glycuronic acid Gautier has ever encountered Then followed a phase in which there was *no glycuronuria, after which normal conditions* were gradually restored With cirrhosis of the liver, the total absence of glycuronuria is a sign of a speedily fatal outcome In tests of alimentary glycosuria, the glycuronuria was not modified even by ingestion of 150 gm sugar, confirming the view that the glycuronic acid is produced only when needed to take care of toxic substances and get them eliminated The Grimbert and Bernier test for glycuronic acid is reliable if the reagents are pure (See abstract 57 in The Journal, 1916, lxvii, 80)

68 **Stumps and Artificial Limbs**—Depage has been consulting with manufacturers of artificial limbs, studying how in amputating to provide the best conditions for the fitting of an artificial limb He pays high tribute to American-made artificial limbs which, he says, are now being adopted by the majority of surgeons in the present war He describes the preferable technic for amputating at the various segments of the leg or arm, with illustrations, showing in particular what not to do

71 **Soldier's Heart**—Binet's study of the heart rhythm in soldiers in the trenches and on long marches has confirmed the possibility of bradycardia from fatigue, and of changes in the pulse under emotional influences the dropping of shells, etc A tachycardia may result which may persist indefinitely, or it may recur in paroxysms A tendency to bradycardia may accompany wounds of the skull, while tachycardia prevails with wounds of the chest, unless the heart is affected, in which case the tendency is to progressive bradycardia There is also a tendency to bradycardia in aviators after sudden descents—part of a vagobulbar syndrome explaining the *mal des aviateurs*

Revue de Gynécologie et de Chir Abd, Paris

XVIII, No 6, pp 441 611 Last indexed Feb 5, p 462

72 *Interstitial Pregnancy (La grossesse interstitielle) C Waegeli (Geneva)—p 441 Commenced in No 5

73 War Wounds of the Abdomen (Plaies de l'abdomen par projectiles de guerre) G Rouhier—p 504

72 **Interstitial Pregnancy**—Waegeli has encountered two cases of interstitial pregnancy during the last year at Geneva, and compares them with 150 he has compiled from the literature In only fifty-two of the whole number were the records complete, specifying the Ruge-Simon sign—the more or less vertical position of the fundus of the uterus, rising from the sound cornu to the gravid cornu, the insertion of the round ligament laterally from the fetal sac, and, lastly, the asymmetrical position of the uterine adnexa in relation to the uterus He illustrates and describes in minute detail the findings in his cases, and insists on the necessity for an immediate laparotomy as soon as the diagnosis of interstitial pregnancy is certain Some women have recovered after conservative operations but he thinks the cornu should be resected, unless excessive hemorrhage compels supravaginal amputation

Policlinico, Rome

August 6, XXIII, No 32, pp 967 994

74 Fish Poisoning from Fish Put Up in Oil (Tonno sott' olio non commestibile Tossicita per gli animali da esperimento e stato microbico) M Pergola—p 967

75 Paraurethral Nodules and Passages of Gonorrheal Origin (Sopra le forme blenorragiche di canali *parauretrali Nodi parauretrali*) G C Sanfilippo—p 979

Riforma Medica, Naples

XXXII No 22, pp 585 612

76 Self Inflicted Emphysema Edema of the Face in Malingering Soldiers P D Siccardi—p 590

No 23, pp 613 640

77 Clinical, Anatomic and Bacteriologic Study of Cholera, Especially Cholera Nephritis P Guizzetti—p 613 Commenced in No 2?

78 Simple Apparatus for Extension and Immobilization of Fractured Limb B Schiassi—p 621

No 24, pp 641 668

79 Unusual Types of Paratyphoid Bacilli Isolated from Soldiers in *the War Zone A Azzi*—p 645

80 Frequency of Paratyphoid and Multiplicity of Bacterial Types Producing It G Galeotti—p 647

81 To Limit Mutilations (Per limitare le mutilazioni) G Perez—p 649

82 Another Case of Helminthiasis from Dipylidium Caninum in Man A Ancona—p 652

Semana Medica, Buenos Aires

XXIII, No 19, pp 519 546

83 The Immunity Process (Nuevas consideraciones sobre el proceso de la immunidad) J Howard—p 519

84 Importance for the Public Health of Sanitary Guard, the '*Hygiene* Experts" (Los guardas sanitorios o peritos higienistas) F Otero—p 529

No 25, pp 677 708

85 Spontaneous Expulsion of Long Loop of Intestine through Perforation in Uterus Caused by Criminal Abortion *Recovery* J B Gonzalez—p 683

86 Intravenous Iodid and Salicylic Medication A A da Matta—p 691

No 26, pp 709 738

87 Sudden Blindness from Hematemesis and Melena F Belgeri and J C Labat—p 709

88 Diagnosis of Twin Pregnancy (Embarazo gemelar) T A Chamorro—p 712

No 27, pp 1 24

89 Hematology in Obstetrics T A Chamorro—p 1

90 Sale of a Medical Practice (Venta de la clientela medica) A Stucchi—p 9

Finska Lakaresallskapets Handlingar, Helsingfors

LVIII, No 1, pp 1 239

91 *The Clinical Course of *Gonorrhea* in Women Treatment and State Control (Studier öfver det kliniska forloppet af gonorr hos kvinnan med sarskild hansyn till behandlingen jamte ett bidrag till bilysandet af statskontrollens betydelse, grundadt på jamforande undersokningar af den *veneriska* morbiditeten i Kopenhamn, Kristiania, Stockholm och Helsingfors) M Heurlin—p 1 Concluded in No 2

92 Physiologic and Chemical Tests of *Domestic* and German Digitalis Leaves J Gronberg—p 106

93 Fifteen Years' Work at the Helsingfors Children's Hospital W Pipping—p 124

No 2, pp 241 466

94 Operative Treatment of Gallstones (Bidrag till gallstensjukdomens operative behandling) H v Bonsdorff—p *241*

95 Pasteboard Splints for the Arm (Om pappskenor for de ofre extremiteterna) R Faltin—p *369*

No 3 pp 467 588

96 Anatomy of the Eye Historical Sketch (Grunddragen af ogonanatomiens historiska utveckling) A Gronholm —p 467
97 *Radium Treatment of Uterine Cancer (Erfarenheter af radiumbehandling vid lifmoderkrafta) O A Boije —p 485
98 *Tuberculosis Mortality in Finnish City (Om dodligheten till foljd af tuberkulösa sjukdomar i Vasa under åren 1895 1915) K Ekholm —p 507
99 *Local Anesthesia for Reduction of Luxations T Kalima —p 526

No 4 pp 589 718

100 *Stab Wounds of the Heart (Några fall af penetrerande hjartsår) B Runeberg —p 589
101 Action of Chloroform and Ether on the Circulation in Rabbits (Om kloroformens och eterns verkningar pa blodcirkulationen hos kaninen) Y Airila —p 609
102 Abducent Paralysis from Otitis Media T Ekelund —p 632
103 Agonal Bacteriemia C Nyberg —p 647

91 **Gonorrhea in Women** —This extensive study of the clinical course and treatment of gonorrhea in women is completed by a statistical review of the comparative morbidity from venereal diseases in the capitals of the four Northland countries with special regard to the influence of state control of prostitution The article is based on 446 cases of gonorrhea including 412 women and thirty-four little girls, given treatment at the Helsingfors hospital Af Heurlin also tabulates statistics from eleven leading clinics, the total embracing 4,342 cases The figures from seven clinics, with 2 178 cases, show involvement of the rectum in 27 per cent The course of rectal gonorrheal trouble is extremely chronic and insidious The younger the patient, the more protracted the course of gonorrhea In Berger s report of 127 cases in girls from 5 weeks to 10 years old the gonorrheal vulvovaginitis dragged along for three months in 61 5 per cent, for four and a half months in 32 4 per cent while in about 2 per cent the affection persisted at the end of ninety-four days Cervicitis was apparently healed in an average of 35 9 days and urethritis in 36 8 while the urogenital lesions healed in forty-three days that is the secretions were free from gonococci in from three to five separate examinations The rectum is involved in fully 50 per cent of all the cases of gonorrheal vulvovaginitis in little girls There was metastasis in the joints in 1 4 per cent of af Heurlin's 412 cases of gonorrhea in women but Chiari s compilation of 23 599 cases showed arthritis in 3 per cent The tubes and ovaries became involved in about 20 per cent of af Heurlin s 412 cases in women None of the data presented indicate that the adnexa are more liable to become involved with active or with expectant treatment of gonorrheal cervicitis, or when the patient is kept in repose or allowed to be up and about during the course of treatment Internal measures never seemed to shorten the course of the disease It ran on an average a six months' course in women, and in a few it persisted for a year or two No direct influence on the disappearance of the gonococci could be detected under vaccine therapy The reaction is not specific and the provocative action in the later periods is uncertain

The venereal morbidity in the four cities reported on fails to show that state control is effectual as a means of combating endemic venereal morbidity Its effect is shown most in that the statistics thus obtained show a higher gonorrhea morbidity in women An extensive bibliography reviewing conditions in various countries is discussed, the comprehensive article filling 198 pages with fifty-two tables of comparative statistics and nineteen charts One table gives Stockmann s findings on reexamination later of 582 cases He found gonococci months after the women had been dismissed as cured in 46.2 per cent The maximum duration was two years

97 **Radium Treatment of Uterine Cancer** —In Boije s thirty-five cases the growth was inoperable and a clinical cure was realized under radium in seven of the women There has been no sign of recurrence during the six to twelve months since In two other cases the cancer returned after a year of apparent health Radical removal of the growth became possible in two cases as it retrogressed under the radiotherapy

98 **Tuberculosis in City in Finland** —Ekholm found the tuberculosis mortality at Vasa 4.215 per thousand inhabitants per year during the last twenty years The proportion was 7 57 per thousand among the children under 5, and 4 42 per thousand between 16 and 30 The tuberculosis mortality for women was only 3 91 per thousand while it was 4 69 for men The tuberculosis mortality has declined somewhat for the well-to-do but not in working class circles

99 **Local Anesthesia for Reduction of Luxations** —Kalima has tried to reduce dislocation of the humerus under local anesthesia in eleven cases and of four other bones in one case each In three cases it became necessary to resort to general anesthesia after all, but in all others reduction was simple and easy In fifteen minutes after injecting the novocain, the dislocated extremity could be manipulated without causing the patient the slightest pain This is particularly an advantage for the rural physician when there is doubt whether the bone is fractured or merely dislocated The muscles relax under the local anesthesia so that sometimes the bone can be slipped into place without reduction maneuvers Kalima cites similar experiences published by others In two cases the femur was dislocated through the sciatic foramen, in two through the obturator, including his personal case In all the luxation was reduced with ease The anesthetic must be injected at a point where the skin is intact, using from 10 to 40 c c of a 1 per cent solution of novocain, or, in case of the femur, up to 50 or 70 c c He has previously published his excellent results with local anesthesia in reduction of fractures

100 **Stab Wounds of the Heart** —Runeberg reports five cases with recovery under operative treatment The symptoms indicating pressure on the heart may include apathy and somnolence approaching absolute unconsciousness In other cases symptoms of internal hemorrhage dominate the clinical picture In operating, he prefers the extrapleural route cutting an osteoplastic flap to ensure better access He emphasizes the importance of removing all the blood from the pericardium cavity He rinsed it clean with warm saline, flushing the deeper recesses through a rubber tube This reduces to the minimum the danger of pericarditis He concludes the operation by carefully suturing the opening in the heart and in the pleura Examination later in a number of cases of stab wounds has shown a surprising tolerance on the part of the heart

Hospitalstidende, Copenhagen

August 2 LIX No 31 pp 753 776

104 *Fracture of the Sesamoid Bones of the Great Toe (Frakturerne af Stortaaens Sesamknogler) T Eiken —p 753
105 Lupus on the Lips and Mucosa of the Mouth (Om Forekomsten af Lupus erythematosus paa Læbernes Prolabium og Mundens Slimhinde) P Haslund —p 760 Commenced in No 30

August 9 No 32, pp 777 800

106 *Case of Phlegmonous Gastritis P V Tuxen —p 777

104 **Fracture of Sesamoid Bone of Big Toe** —In reviewing the records of the Copenhagen hospitals for the last fifteen years Eiken found only one case of this kind, and it was a pseudo fracture the separation of the bone into halves being evidently congenital A case of true fracture was recently encountered at Rovsing's private clinic The roentgenograms of both cases are given The fractured bone was removed about a year after the accident which occurred while the woman was walking on an asphalt pavement The symptoms were pain starting at a point at the margin of the tibial sesamoid bone of the great toe, with tenderness and a slight cracking sound on moving the toe It is impossible to differentiate the fracture from a sprain or contusion, acute gout or rheumatism without roentgenography This clears up the diagnosis at once The foot had been treated for a year with baths massage etc but without relief A complete cure followed resection of the fractured bone Eiken knows of only four other cases on record all in adults In one case the disturbances subsided under conservative measures in the others not until part or all of the bone had been removed

106 **Phlegmonous Gastritis** —Tuxen relates a case which he says is the third on record in which phlegmonous gastritis was diagnosed before the operation or death The patient was a previously healthy young man under treatment for

rubeola He suddenly developed symptoms suggesting acute stomach trouble with pains in the stomach region and incessant vomiting paresis of the intestines and high temperature Under the diagnosis of either perforated gastric ulcer or phlegmonous gastritis, the stomach was opened and diffuse phlegmonous gastritis was found The stomach was drained but death followed in three days Tuxen discusses this form of gastritis from every standpoint, comparing his case with the 121 J Jensen compiled from the literature, adding ten personal cases to the list A phlegmon can retrogress, but as we cannot exclude perforated gastric ulcer in these cases, Tuxen thinks a laparotomy is indicated When phlegmonous gastritis is discovered, he would refrain from further intervention

Hygiea, Stockholm

LXXVIII No 14, pp 993 1088

107 Simultaneous Incipient Tabes, Tuberculous Spondylitis, and Transverse Myelitis in Man of Forty Two G Lundahl —p 993
108 Polyneuritis in Young Woman Suggesting Meniere's Disease (Ett fall av polyneuritis cerebralis meniériformis) H Key Aberg —p 1009
109 *The Dangers of Lumbar Puncture (Om farorna vid lumbalpunktion) V Boivie —p 1023

109 **The Dangers of Lumbar Puncture** —Boivie had a patient with diffuse symptoms of a brain tumor who died suddenly nine hours after an extremely cautious lumbar puncture Only 3 c c of cerebrospinal fluid had escaped, and it dripped a drop at a time An hour later she screamed with sudden intense pain in the head and then became somnolent and died the ninth hour from failing respiration Necropsy revealed a glioma 7 5 cm long by 4 5 cm wide, starting in the floor of the ventricle, with an offshoot extending into the foramen magnum The ventricles were not distended, and hence he is convinced that the lumbar puncture could not have been directly responsible for the fatality in this case There is always the danger, however, that the needle may go too far, especially in children, and puncture the abdominal aorta or a loop of intestine, but he has never heard of this being done In three cases on record the needle passed through an abscess and carried germs into the spinal cavity Von Lier suggests on this account to administer hexamethylenamin beforehand It has also been recommended in case of bleeding With unruly patients there is danger of breaking the needle In some recent reviews of the subject a number of instances are related of sudden death before the contemplated lumbar puncture had been applied A recent compilation by Schonbeck lists seventy-one cases of sudden death after lumbar puncture, but Boivie comments that they are listed without criticism of the actual share of the lumbar puncture in the fatality

In a recent case in Billstrom's service, a woman of 40 with incipient tabes dorsalis was treated with lumbar puncture, 5 c c of fluid being withdrawn The woman died suddenly twenty-three hours later and necropsy revealed embolism in the left coronary artery from thrombosis in the aortic valve The release of the spinal fluid may have induced a hemorrhage *ex vacuo* or in some way interrupted the communication between the fluid in the brain and in the spinal cord If there is much internal hydrocephalus any abrupt change in the tension of the fluid in the spinal cavity is liable to suck into the foramen magnum any loose tissue in the vicinity This is manifested by an abrupt change in the tension of the fluid Hence the manometer findings should be closely watched during lumbar puncture stopping at the first sign of a sudden drop in the pressure Exceptional care is necessary with high blood pressure and rigid blood vessels Psychic irritation and alcoholism contraindicate it entirely In conclusion, Boivie quotes Schonbeck's warning to keep the patient reclining for twenty four hours before lumbar puncture, and for from twenty-four to forty-eight hours afterward, with the head low during the first twelve hours Any change from the reclining position should be made extremely gradually The fluid should never be aspirated under any circumstances, and no attempt should be made at lumbar puncture on outpatients The mishaps that have been published can be traced as a rule to the bursting of an aneurysm or arteriosclerotic vessel under too-rapid fluctuations of pressure in the spinal canal, or else to part of an intracranial tumor being drawn into some opening thus plugging it

Ugeskrift for Læger, Copenhagen

July 27, LXXVIII, No 30 pp 1251 1290

110 *Familial Chronic Anemia with Jaundice J U Gerdes —p 1251
111 *Occult Bleeding (Undersøgelser over okkult Blødning) J P Gregersen —p 1260 Commenced in No 29

August 3, No 31, pp 1291 1352

112 Instrument for Mechanical Clockwork Hammer Action for Uniform and Exact Percussion C Jørgensen —p 1291
113 Acetonemia with Vomiting in Child of Five H Thorborg —p 1298

110 **Familial Hemolytic Jaundice** —In the family described by Gerdes seven of the ten members have chronic anemia, jaundice, enlargement of the spleen, microcytosis and urobilinuria The mother is free from it and one of her three daughters and one son There were also a number of cases in the preceding generation Iron and arsenic is the main reliance, but no cure is known from them Splenectomy may be followed by marked improvement This does not cure the disease, but it removes a constant menace to the blood, the more dangerous as the resisting powers of the corpuscles are so far below par It would be instructive if we could study the blood systematically in persons who have had the spleen removed, but the number is too small as yet

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SARCOMA OF THE INTRA-ABDOMINAL TESTIS

WITH REPORT OF A CASE *

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DENVER

This subject has attracted the special attention of a few recent writers in this country, notably Bulkley,[1] Coley,[2] Ewing[3] and Hinman[4] of Johns Hopkins I am indebted to them for statistical and other interesting data

Bulkley collects from the literature fifty-seven cases of sarcoma of the intra-abdominal testis, thirty-seven of the fifty-seven patients studied were single cryptorchids Seventy-five per cent of all the cases occurred in patients between 25 and 45 years of age, and 74 per cent of the mortality occurred within one year after operation The fatal progress was more rapid in the undescended than in the scrotal testis

Hinman says that the malignancy is relatively more common in the undescended testis and this is the generally accepted view Bulkley states that one in every four cases of malignant disease of an abnormally located testis is in the abdomen, and that there is one abdominal sarcoma to every fifteen sarcomas in the scrotum Observations of others vary but little in this respect

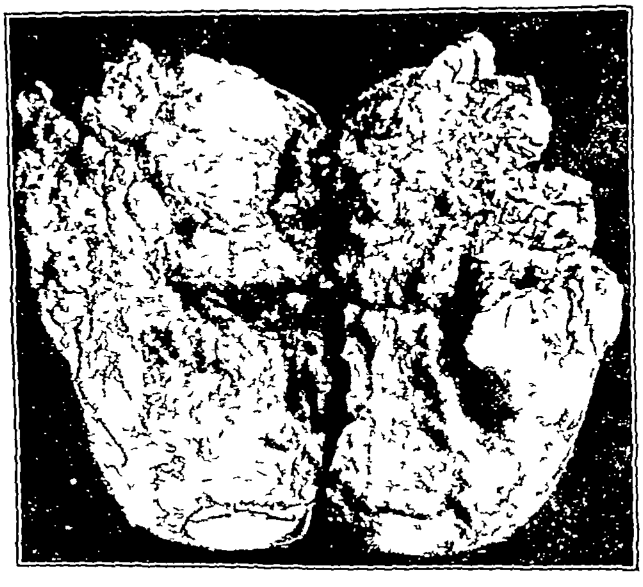
Fig 1 —Gross appearance of neoplasm diminished one third since operation

Ewing states that most testicular neoplasms originate in the sex cells and are primarily teratomas, and others declare that all malignant tumors of the testis are teratomas or derived from them

The teratomas and mixed types of tumor grow more slowly and in these cases the lymph glands are not involved so early When the disease is in the right testicle the glands of the vena cava are the first involved in the metastases, and when it is in the left testicle the glands of the aorta are first involved

Bulkley states that, in the forty-seven intra-abdominal cases in which operation was performed, only three of the patients were known to be living after two years

Syphilis, tuberculosis and nonmalignant neoplasms of the abdominal testis are practically unknown

Bulkley expresses the common opinion that spermatogenesis is lacking in the abdominal testis, but this statement admits of some qualification He also says that transplanting into the scrotum does not improve it in this respect This refers undoubtedly to the late operation in adult life

Trauma is more common to the testis in its normal position, but it is not generally regarded as an important factor in the causation of malignant degeneration of the testicle

Chevassu classifies all teratomas as cancerous

With these preliminary observations, I desire to contribute one more to the brief list of reported cases of sarcoma of the intra-abdominal testicle

REPORT OF CASE

The patient, L W, was a miner aged 37 years, married He had never had any venereal disease When 17 years of age, he had consulted a physician in regard to an undescended testicle on the right side, but nothing important was done, and the man had no discomfort or inconvenience until April 1913, when moderate discomfort in the lower abdomen with dull pain and stomach indigestion caused him to seek medical aid He consulted me in November, 1913, and a large abdominal tumor extending above the umbilicus and filling the lower abdomen was readily observed It seemed to have a fixed point in the pelvis and admitted of but slight motion laterally More frequent micturition was believed to be due to pressure on the bladder The urine was normal and cystoscopic examination by Dr Oliver Lyons showed no pathologic condition of the bladder

The insidious and finally rapid growth connected with, as I felt the intra-abdominal testicle impelled a diagnosis of sarcoma of the retained testicle Its operability I doubted but an exploration was decided on and, Dec. 6, 1913, at St Luke s Hospital, assisted by Dr Lyons, I opened the abdomen by a liberal incision in the middle line. A large,

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* Read before the Section on Surgery General and Abdominal at the Sixty Seventh Annual Session of the American Medical Association, Detroit June 1916

[1] Bulkley Surg Gynec. and Obst., 1913 xvii 308

[2] Coley W B Cancer of Testis Ann Surg, July 1915 lxii No 1

[3] Ewing J Teratoma Testis and Its Derivatives, Surg Gynec and Obst March 1911 xii 230

[4] Hinman Frank The Operative Treatment of Tumors of the Testicle THE JOURNAL A M A Dec. 5 1914 p 2009

rubeola He suddenly developed symptoms suggesting acute stomach trouble with pains in the stomach region and incessant vomiting, paresis of the intestines and high temperature Under the diagnosis of either perforated gastric ulcer or phlegmonous gastritis, the stomach was opened and diffuse phlegmonous gastritis was found The stomach was drained but death followed in three days Tuxen discusses this form of gastritis from every standpoint, comparing his case with the 121 J Jensen compiled from the literature, adding ten personal cases to the list A phlegmon can retrogress, but as we cannot exclude perforated gastric ulcer in these cases, Tuxen thinks a laparotomy is indicated When phlegmonous gastritis is discovered, he would refrain from further intervention

Hygiea, Stockholm

LXXVIII, No 14, pp 993 1088

107 Simultaneous Incipient Tabes, Tuberculous Spondylitis, and Transverse Myelitis in Man of Forty Two G Lundahl—p 993
108 Polyneuritis in Young Woman Suggesting Meniere's Disease (Ett fall av polyneuritis cerebralis meniериformis) H Key Aberg—p 1009
109 *The Dangers of Lumbar Puncture (Om farorna vid lumbalpunktion) V Boivie—p 1023

109 **The Dangers of Lumbar Puncture**—Boivie had a patient with diffuse symptoms of a brain tumor who died suddenly nine hours after an extremely cautious lumbar puncture Only 3 c c of cerebrospinal fluid had escaped, and it dripped a drop at a time An hour later she screamed with sudden intense pain in the head and then became somnolent and died the ninth hour from failing respiration Necropsy revealed a glioma 7 5 cm long by 4 5 cm wide, starting in the floor of the ventricle, with an offshoot extending into the foramen magnum The ventricles were not distended, and hence he is convinced that the lumbar puncture could not have been directly responsible for the fatality in this case There is always the danger, however, that the needle may go too far, especially in children, and puncture the abdominal aorta or a loop of intestine, but he has never heard of this being done In three cases on record the needle passed through an abscess and carried germs into the spinal cavity Von Lier suggests on this account to administer hexamethylenamin beforehand It has also been recommended in case of bleeding With unruly patients there is danger of breaking the needle In some recent reviews of the subject a number of instances are related of sudden death before the contemplated lumbar puncture had been applied A recent compilation by Schonbeck lists seventy-one cases of sudden death after lumbar puncture, but Boivie comments that they are listed without criticism of the actual share of the lumbar puncture in the fatality

In a recent case in Billstrom's service, a woman of 40 with incipient tabes dorsalis was treated with lumbar puncture, 5 c c of fluid being withdrawn The woman died suddenly twenty-three hours later and necropsy revealed embolism in the left coronary artery from thrombosis in the aortic valve The release of the spinal fluid may have induced a hemorrhage *ex vacuo* or in some way interrupted the communication between the fluid in the brain and in the spinal cord If there is much internal hydrocephalus any abrupt change in the tension of the fluid in the spinal cavity is liable to suck into the foramen magnum any loose tissue in the vicinity This is manifested by an abrupt change in the tension of the fluid Hence the manometer findings should be closely watched during lumbar puncture stopping at the first sign of a sudden drop in the pressure Exceptional care is necessary with high blood pressure and rigid blood vessels Psychic irritation and alcoholism contraindicate it entirely In conclusion, Boivie quotes Schonbeck's warning to keep the patient reclining for twenty-four hours before lumbar puncture, and for from twenty-four to forty-eight hours afterward, with the head low during the first twelve hours Any change from the reclining position should be made extremely gradually The fluid should never be aspirated under any circumstances, and no attempt should be made at lumbar puncture on outpatients The mishaps that have been published can be traced as a rule to the bursting of an aneurysm or arteriosclerotic vessel under too rapid fluctuations of pressure in the spinal canal, or else to part of an intracranial tumor being drawn into some opening thus plugging it

Ugeskrift for Læger, Copenhagen

July 27, LXXVIII, No 30, pp 1251 1290

110 *Familial Chronic Anemia with Jaundice J U Gerdes—p 1251
111 *Occult Bleeding (Undersøgelser over okkult Blødning) J P Gregersen—p 1260 Commenced in No 29

August 3, No 31, pp 1291 1352

112 Instrument for Mechanical Clockwork Hammer Action for Uniform and Exact Percussion C Jørgensen—p 1291
113 Acetonemia with Vomiting in Child of Five H Thorborg—p 1298

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The tumor was submitted to Dr R C Whitman, pathologist of the University of Colorado, School of Medicine, who made the following report "I regret to report that the tumor from Mr Walker is a typical large round-celled sarcoma It is also sometimes called carcinoma, mesothelioma, and malignant teratoma This particular one is somewhat interesting in view of the fact that certain portions of it present a typical sarcoma structure, while others have some appearance of the usual carcinoma" This shows a mixed type

The patient recovered promptly and resumed his position at the mine in five weeks A fistulous opening, extending to the full depth of the wound, remained for a year This was attended with an annoying sequel and for a short time excited some apprehension From the date of operation, January 30, the toxin was continued until June 24 At this time the patient was suffering from local infection of the fistulous tract and a small, deep, unhealed cavity

Before leaving Denver, I injected bismuth paste to complete the healing When the patient went to the copper mine, I showed him and his wife how to use it, and it was now the only treatment, injection being repeated two or three times a week, but technic imperfect

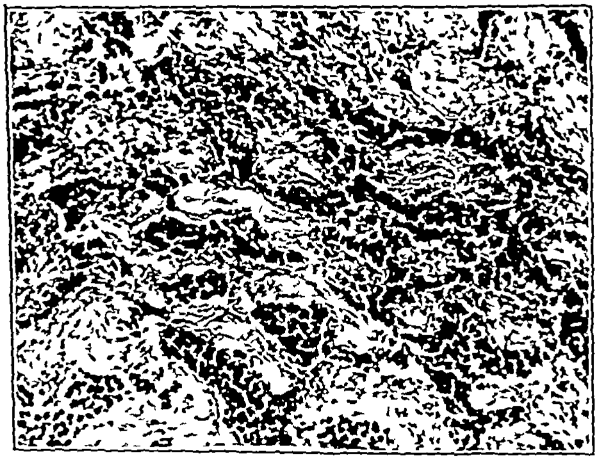

Fig 3 —Carcinoma like area showing cell nests sharply differentiated from the connective tissue stroma Zeiss apochromatic 16 mm Leitz projection ocular (R C Whitman)

June 24, as indicated, he had a slight rise of temperature with headache There were local swellings in the abdominal wall and the glands in the groin were slightly enlarged, suggesting metastasis

I found the old fistulous wound infected, June 26, with a small nozzled syringe, I washed out the paste and pus with a dilute solution of hydrogen peroxid The temperature was normal in thirty-six hours The serial Roentgen-ray treatment with Coolidge tube was begun June 29 and discontinued July 5 I continued the irrigation with a 2 per cent solution of liquor formaldehydi in glycerin for ten days at least Improvement was continuous and the patient gained 37 pounds in weight in two months, and all local indications of disease disappeared in a short time He has had no toxin since, and no Roentgen-ray treatments since July 29, 1915

The improvement of the patient was so prompt and rapid that I felt this temporary setback was due to infection from the small pus cavity chiefly, but I attribute benefit to the use of the Roentgen ray Its chief use, in my opinion, is after, not before, operation in any operative case

The superficial veins of the abdomen were conspicuous for a year before operation Their appearance today is nearly normal and so is the patient's general health

He is 5 feet, 6½ inches in height, and weighs at this time 175 pounds June 30, 1915, he weighed 137 pounds and his weight had slowly but steadily increased since the operation, January 30 The frequent use of the toxin with severe reaction no doubt, operated to prevent rapid increase in weight.

COMMENT

Treatment of this condition is by radical operation, and its success depends chiefly on early recognition The disease is quite insidious in its early stage, and unfortunately diagnosis is made usually at an advanced stage Hinman places the operative cures at from 15 to 20 per cent This is better than formerly recorded

Prevention is worthy of consideration This can only mean the transplantation of the organ to its normal position in early life, or its removal in early adult life Bulkley expresses the opinion that if only one testicle is undescended and the other is in normal position, the former should be removed, but if both are undescended the operation is not advisable, probably for certain assumed sexual or biologic considerations

To assume that an abnormally placed organ is relatively more prone to degeneration or malignant growth is not, in my opinion, a surgical superstition, but is in accordance with sound biologic laws Neither an entire organism, nor a part, develops as naturally in structure and function in an unhealthy environment Decay or degeneration under such conditions is a natural response to the exacting demands of natural biologic laws

The cure of an advanced case is exceptional and requires several years to determine The mixed toxin in the case reported undoubtedly had a repressive or inhibitory, influence on the growth and progress of the tumor and must have been instrumental in promoting the disappearance of the nodular condition, observed in the exploratory operation, Dec 6, 1913

There should be no question as to the propriety and advisability of removing the testicle in early adult life in case only one is misplaced, whether the testicle is in the inguinal canal or within the abdomen In the latter case, the Roentgen ray may be utilized in determining its location, if this is not revealed by palpation If both are misplaced, one testicle being in the abdomen and the other in the canal, discretion and sound judgment would dictate the removal of the intra-abdominal testis, but not the inguinal, unless manifest disease of the organ demands it The inguinal testis is always subject to observation and watching, the intra-abdominal never It is, therefore, whether more prone to malignant change or not, the greater menace to life because of its secluded position, and of the insidious character of malignant disease and of the fact that the tumor has reached the point of great danger before it is observed

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ABSTRACT OF DISCUSSION

Dr. William B Coley, New York I believe the very remarkable result obtained by Dr Grant was largely due to the excellent judgment which he exercised in the administration of the treatment, and to his perseverance in keeping it up for a long period Dr Grant has brought up a number of important points for discussion First, the tendency of the undescended testis to undergo malignant degeneration There is a very wide diversity of opinion on this point Originally I agreed with W McAdam Eccles who held that there was no evidence of such tendency My first twenty-five cases of sarcoma of the testis showed no evidence of an undescended testicle the twenty-sixth and twenty-seventh both were of the undescended variety In 1914 I reported 64 cases of cancer of the testis in which not less than twelve occurred in the undescended testis, and of these five were of the abdominal ectopia Since I have observed six other cases none of which were of the abdominal variety With regard to the treatment of this condition, I do not agree with Bulkley, who advocates the removal of every abdominal ectopic testis unless double In cases in which the testis does not descend before the age of puberty, it is possible in nearly every instance to bring the testicle down into the scrotum by Bevan's operation In rare cases in which the testis cannot be brought down, I believe it wiser to remove it rather than to place it in the peritoneal cavity Inasmuch as antecedent trauma has been observed in about one-third of all the cases of sarcoma of the testis one would have to consider the operation of bringing the testicle down, as a possible factor in causing malignant degeneration In one case which I observed there was good reason to believe that the trauma, incident to the operation of bringing the testicle down into the scrotum, was the immediate exciting factor in the causation of a sarcoma which developed shortly after the operation On the other hand, in 281 operations for undescended testis in addition to nearly 100 cases which were operated on in other hospitals, no case of sarcoma developed after operation The prognosis of sarcoma of the testis in general is very bad while that of sarcoma of the undescended testis is still worse In view of the generally admitted hopelessness of malignant disease of the testis, there has been a strong tendency during the last two or three years to advocate a very extensive and radical operation, consisting in the removal of all of the retroperitoneal and preaortic glands—a very grave operation and thus far attended with a mortality of 11 per cent I hold the opinion that it is unwise to submit the patient to such a prolonged and grave operation when the chances of saving his life by the operation are outweighed by the chances of death from the operation I would propose the following method as a substitute to the radical operation just discussed In primary cases, as soon as the diagnosis has been made, I would advise the immediate removal of the testis and cord, as high up as possible through the Bassini incision for inguinal hernia Second, I would advise, beginning, as soon as the wound has healed, a routine prophylactic treatment with the mixed toxins of erysipelas and *Bacillus prodigiosus*, the same to be carried out for a long period of time, at least six months and in some cases a year This treatment could easily be carried out by the family physician without interfering with the patient's ordinary occupation

Dr W W Grant, Denver In reference to the postoperative treatment of these cases If you will remove the growth completely these patients ought then to have some treatment of a prophylactic character There are but two methods that we know of of any value whatever One is is the use of the toxin made by Dr Martha Tracy of Philadelphia and the other is the Roentgen ray I believe these measures ought to be continued for a long time, for many months, if not for two or three years, because we never know when the patient has reached the period of complete cure It may be three years, five or more I therefore commend that feature always to your earnest consideration

THE SURGICAL PROBLEM OF UNILATERAL SYMPTOMLESS HEMATURIA

ITS CAUSE AND SURGICAL RELIEF *

R L PAYNE, JR, MD
Fellow of the American College of Surgeons
NORFOLK, VA
AND
WILLIAM B MacNIDER, MD
Professor of Pharmacology, University of North Carolina, School of Medicine
CHAPEL HILL, N C

Nearly every surgeon is occasionally confronted with a case of symptomless, unilateral bleeding from the kidney, and in most instances he must face the difficult problem of solving the pathologic problem if possible and then directing his treatment accordingly

The first purpose of this paper is to exclude those specific causes of unilateral hematuria, namely, stone, tuberculosis, new growths and hydronephrosis, and secondly to discuss only that type which has in the past been classified under the misnomer of "essential" In order that this term "essential" shall be aptly applied we must have a case of painless bleeding in which the kidneys show absolutely no infectious agent, no organic changes and no clinical evidence of functional insufficiency We do not recognize that such a negative condition can exist with a hematuria, and believe that in every case of unilateral renal bleeding there occur definite changes in the kidney which act as the direct causative factor

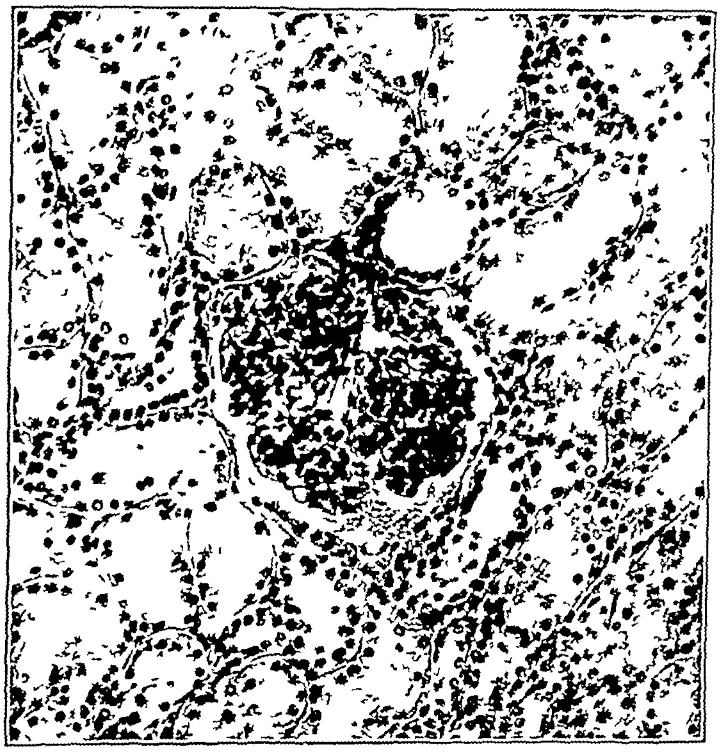

Fig 1 —Normal cortex, × 390, in same tissue section from which the following pictures were made

The etiology of the so called essential hematuria has been discussed at length in many valuable articles appearing during the last five years, but it is the purpose of this paper to consider only our findings in the human and experimental cases we have personally studied

In considering the many theories and deductions so far advanced as to the cause of this condition, one is forced to conclude from the evidence in hand that there is only one of material value, and this is nephritis There is little room to doubt that the bulk of the pathologic evidence is in favor of some form of chronic inflammatory change in the kidney acting as the exciting factor in symptomless, painless and more or less continuous unilateral hematuria

The great drawback to this evidence being accepted as conclusive is the wide variance in the pathologic observations so far recorded, and the chief obstacle seems to lie in our interpretation of what is nephriti Recent experimental work would not exclude a combined vascular and epithelial nephropathy, but changes in the kidney resulting in hemorrhage as the one symptom must necessarily be confined principally to the vascular elements In order to prove that certain chronic inflammatory changes in the kidney are the cause of this bleeding, we must first demonstrate a direct relationship of these changes to the renal vessels, and then show these vessels to be the actual source of the bleeding

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* Read before the Section on Surgery, General and Abdominal the Sixty Seventh Annual Session of the American Medical Associatio Detroit, June, 1916

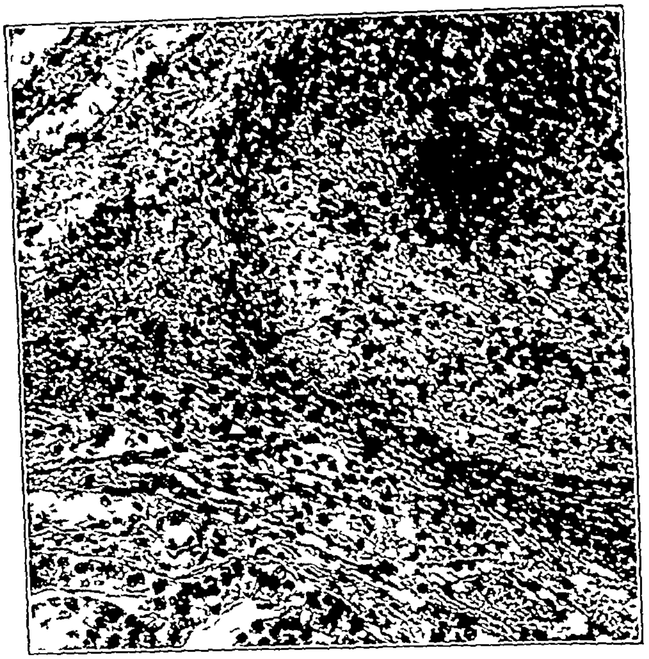
Fig 2—Area of recent infection in papilla × 188 Exudate consists of fibrin blood cells and polymorphonuclear leukocytes

There has been but one type of lesion so far reported which would seem to us to be the probable cause of bleeding in this condition, and that is the renal varix reported by Fenwick,[1] Cabot,[2] Braasch,[3] Newman,[4] Pilcher,[5] Baum,[6] Payne[7] and Ballenger[8]

Our studies are confined to eleven human and six cases of experimental hematuria which we have succeeded in producing on the dog In the first eight human cases our findings seemed to coincide with those of other investigators, namely, nephritis, interstitial nephritis and glomerulonephritis It is to be recorded, however, that nephrotomy was done in these cases and sections of the cortex only were studied Fifteen months ago we did our first nephrectomy for this condition, and in this case we were able to demonstrate for the first time the actual source of the bleeding to be from dilated veins in the pyramids and on the free surface of the papillae Since this first case we have had two more human cases which showed the same pathologic changes, namely, few if any changes in the cortex, a marked overgrowth of chronic inflammatory tissue in the medulla and pyramids which surrounded the vessels of this zone, and these vessels in turn dilated and resembled varicosities In those cases of experimental nephropathy in the dog in which we have succeeded in securing a condition of hemorrhage analogous to the clinical type under study, the same changes in the kidney have obtained

In our experimental study of hematuria we have learned to recognize two distinct types resulting from infection first, the early form of bleeding from acute inflammation, with diapedesis, and second, a cessation of this hemorrhage with return of more or less constant bleeding when chronic inflammatory changes occurred in certain definite areas of the kidney In any chronic progressive infectious process, sooner or later there results a secondary damage to the tubules and a replacement fibrosis The effect of this fibrosis on the circulation in the kidney depends on its relationship to the renal vessels Certainly in two human cases of symptomless unilateral hematuria which we have studied, this overgrowth of connective tissue in the papillae and at the corticomedullary junction had resulted in such impediment to the return venous flow from within the kidney that varicosities had been produced, both within the substance of the medulla and on the free surface of the papillae, and actual hemorrhage from these vessels was demonstrated

We do not want to draw from these studies any dogmatic conclusions, but we can say definitely from our observations in the human and experimental kidneys examined by us that the hemorrhage is due to chronic inflammatory changes in the medulla and pyramids resulting in an obstruction to the venous return and subsequent hemorrhage by diapedesis or actual rupture of the capillaries Of special importance in this connection, our studies show the formation of connective tissue at the corticomedullary junction which hinders the return venous flow from those veins found in the medulla below this point, the venulae rectae, which pass up to the corticomedullary junction to unite with other veins before finally leaving the kidney

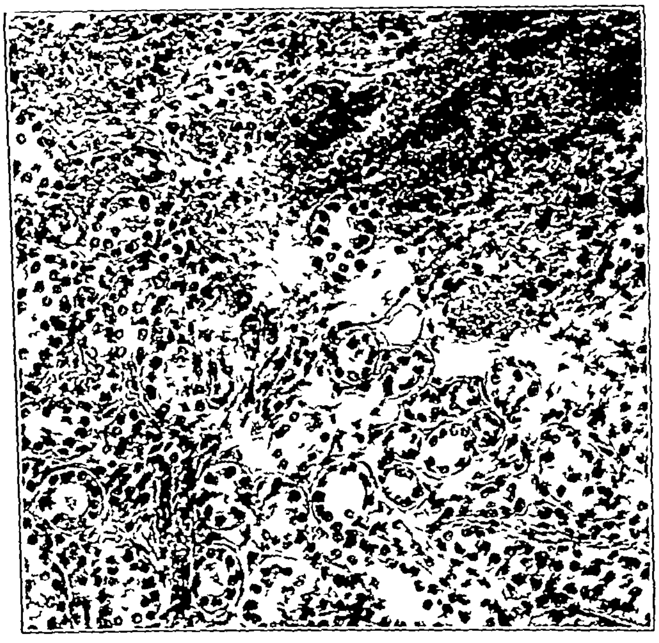
Fig 3—Overgrowth of connective tissue in medulla with distention of capillaries × 190

In this connection we wish to record three cases, one human and two experimental in the dog, that we have observed to have microscopic stone formations in the pyramids surrounded by an overgrowth of chronic inflammatory tissue which obstructed the return flow in the straight veins with coincident hemorrhage A possible explanation of the relationship between this type of calculus formation and the hemorrhage is that the stones resulted from a chronic focal infection and they in turn stimulated the connective tissue overgrowth We are not in a position to say that all cases of so-called symptomless hematuria are due to the changes here described, but report our observations as additional light on the unsolved pathologic problem

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[1] Fenwick Brit Med Jour June 17 1905
[2] Cabot Am Jour Med Sc January 1909
[3] Braasch W F Clinical Observations on Essential Hematuria The Journal A M A Sept 20 1913 p 956
[4] Newman Brit Jour Surg No 1, 1913
[5] Pilcher Ann Surg 1909 p 65
[6] Baum Munchen med Wchnschr 1913 No 5
[7] Payne Tr Southern Surg and Gynec Assn 1915
[8] Ballenger Jour Rec Med Atlanta 1915

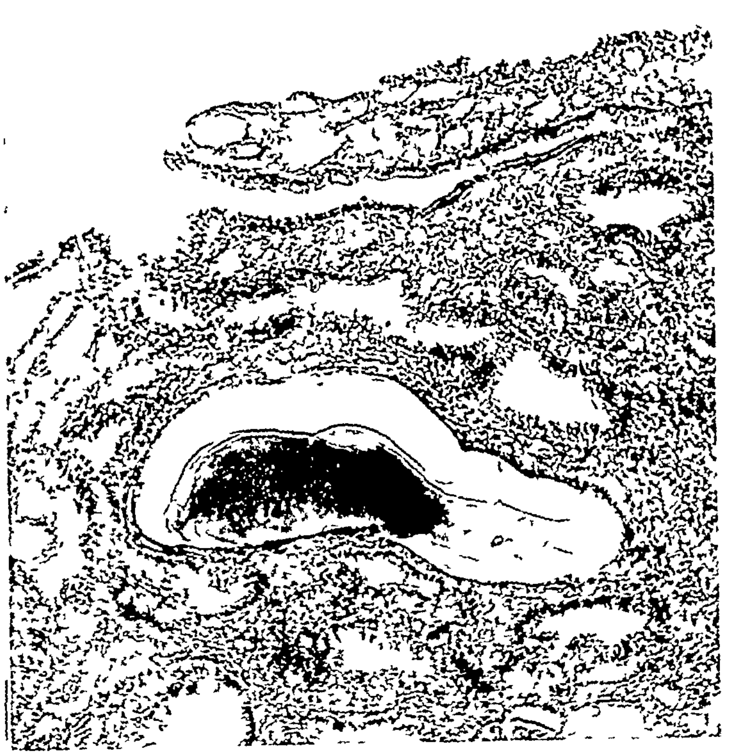

Fig 4—Dilated venules at tip of papilla, × 45 In some, the blood has not coagulated, in others, clotting has occurred, and hyaline degeneration of the thrombus is beginning, in others, the hyaline change is complete, while some show beginning organization

The one great argument brought forth by many observers against nephritis being the cause of this condition is the comparatively large number of chronic nephropathies which do not bleed In reply to this well taken point we would say that in the ordinary severe types of chronic nephritis the bulk of the changes are in the cortex, whereas the changes here recorded are found in the medulla and pyramids Further, in our studies of experimental nephropathies we have so far found a bleeding kidney only in those cases in which the principal changes have occurred in the medulla and pyramids In this connection it would be interesting to know what those cases observed by other men would show if viewed from this light and careful studies made of serial sections taken from the pelvic zone Certainly small sections from the cortex would show nothing convincing, as evidenced by the eighty-odd histologic reports found in literature

The contentions of Randall[9] and Spitzer[10] that congestion or venous stasis is the true cause of this condition more or less coincides with our findings, only these observers failed to locate the exciting factor as a focal lesion within the kidney proper It is a fact that certain extrinsic causes, such as movable kidney, pressure stasis from tumors, and cardiac and hepatic lesions, will cause hematuria, but these are specific causes which do not obtain in the type of case under study Again, congestion from extrinsic causes will usually produce a mild hematuria, while most of those so-called essential cases bleed profusely at times

TREATMENT

Nephropexy—This has been advocated, but one can readily see how futile this would be in the type of case in which definite focal lesions in the kidney are producing the hemorrhage It should be applied only in those cases in which marked mobility can be shown to interfere with the blood supply of the kidney

Decapsulation—This is a procedure which has been reported as curative in seventeen cases found in literature, but the rationale of the operation is not such as would commend it for routine use A collateral circulation would be the most reasonable explanation for a cure after decapsulation, but according to the conclusive experiments of Katzenstein,[11] stripping of the capsule absolutely prevents rather than favors the formation of a new circulation The question of a new growth or a small tuberculous focus is always a serious possibility in these cases, and decapsulation without nephrotomy does not provide for inspection of the kidney substance or pelvis We had one such case seven years ago, diagnosed essential hematuria, which showed a small focus of tuberculosis in the lower pole when nephrotomy was done Similar reports have come from Israel, Rovsing and others, and it is just these serious possibilities in this unsolved pathologic problem which should preclude decapsulation alone as a safe surgical procedure On the other hand, there are several cases reported in which decapsulation failed to cure and nephrectomy was later done

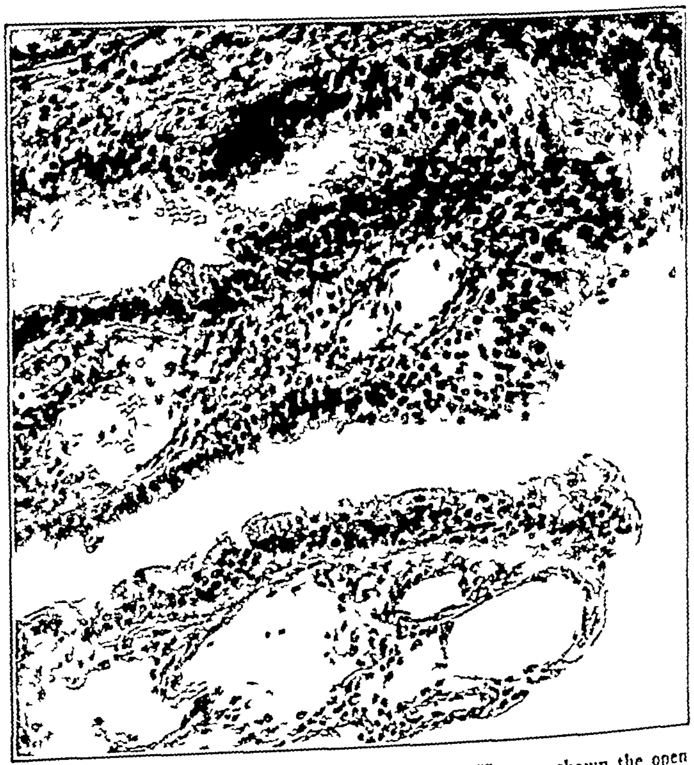

Fig 5—Greater portion of papilla, × 116 Here is shown the opening of a duct of Bellini and numerous distended venules, some venules show no blood others have noncoagulated blood, and yet others show thrombi undergoing hyaline degeneration

Nephrotomy—The one procedure which has yielded the best results is nephrotomy with bisection from pole to pole and down to the pelvis, but we find nine cases reported in which this method failed to cure We have had eight cases treated by nephrotomy with suture in which cure followed in every instance Some of the failures accredited to this procedure may be due to the insufficient method of performing the nephrotomy We know of two such instances in which the operator explored the kidney and pelvis through an opening just large enough to introduce one finger Certainly in many of these cases the condition is essentially an infectious process, and this may explain why nephrotomy in some instances has failed to produce a cure Since nephrotomy does not remove the infection, we may expect a temporary cure in a small percentage of cases, for it is possible that the same sequence of pathologic events as described above may recur, which would result in a return of the hemorrhage and finally demand nephrectomy for an ultimate cure There are also numerous cases of nephrotomy reported in which nephrectomy was done within the succeeding forty-eight hours because of severe postoperative hemorrhage Since we have had no such experience, we believe this complication is probably due to the technical fault of improper coaptation with mattress sutures The method of complete bisection probably cures through thrombosis or the establishment of a collateral circulation within the kidney, which relieves the distention of the varicosities

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[9] Randall, Alexander The Etiology of Unilateral Renal Hematuria, The Journal A M A, Jan 4, 1913, p 10

[10] Spitzer, W M Continuous Painless Renal Hemorrhage and Its Treatment, The Journal A M A, Dec 12, 1914, p 2110

[11] Katzenstein Ztschr f exper Path u Therap, 1911 ix

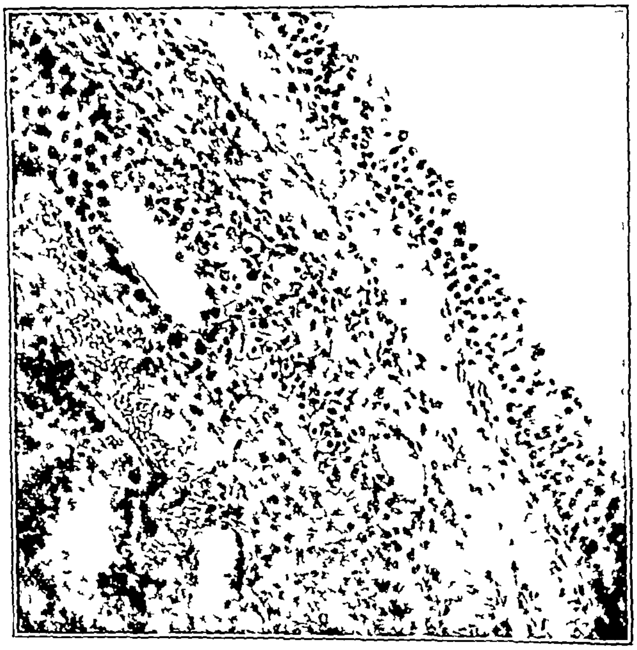

Fig 6 —One long dilated venule just under the epithelium covering the papilla × 300

Nephrectomy —This is a certain method of cure, but too radical to commend itself as a routine procedure We have removed the kidney in two cases in which the exigency of the occasion demanded it One showed such large and numerous varicosities, a condition unlike anything observed by us before, that nephrectomy was deemed wise In the other case both main renal veins were accidentally lacerated, and we were afraid to leave the kidney *in situ* This fear was emphasized by the belief from our human and experimental cases that the clinical condition is primarily one of focal venous stasis within the kidney In cases in which the bleeding has produced a critical condition of the patient, and in those cases in which nephrotomy has failed to relieve, nephrectomy is clearly indicated, provided the other kidney is present and its functional capacity good

Nonoperative Treatment —This consists of styptic injections into the kidney pelvis and the hypodermic administration of vaccines, horse serum, human serum and whole blood into the circulation The conservative treatment of these cases, however, demands serious consideration, for one can never know, until a case is proved cured, but what a new growth, a tuberculous focus or an undetected stone may be the exciting cause of the one symptom hemorrhage In acute or subacute cases in which an infectious agent can be isolated, it is well to try vaccines Given a case of mild unilateral renal hemorrhage without pus, a negative roentgenogram, a normal pyelogram and little or no functional impairment, which can be kept under constant observation, we believe that it should be treated conservatively by epinephrin to the kidney pelvis and serums hypodermically Where the bleeding can be controlled by the use of epinephrin or serum, it is possible to study the urine free from blood, and for this purpose can be recommended in every case With this method there is always the danger of masking the one symptom hemorrhage, while a possible malignant or tuberculous process is left unrecognized to progress In dealing with such a case of unknown pathology these procedures are to be condemned unless the patient can be kept under our control and constant observation When the conservative treatment fails, or the bleeding has existed for several months with a resulting anemia coupled to an uncertain diagnosis, then we believe that surgery should be resorted to without delay

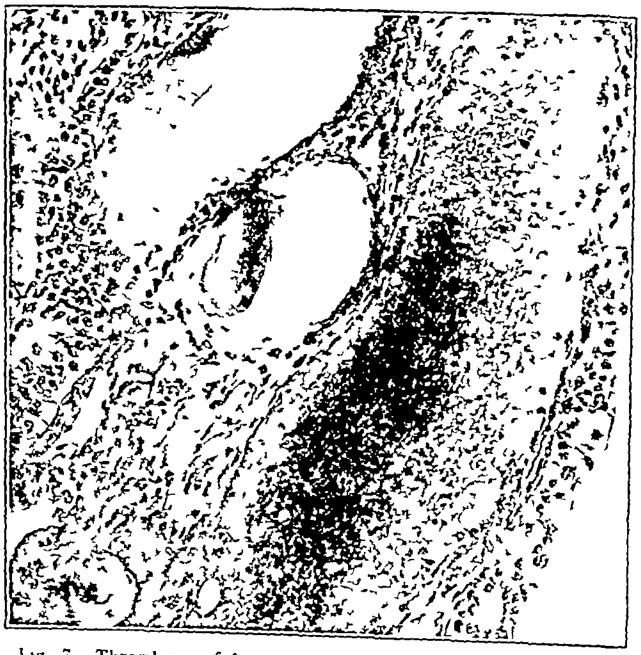

Fig 7 —Thrombosis of large vein just under the surface epithelium covering the papilla Red blood cells are shown in the center while the edges of the thrombus are beginning to undergo hyaline degeneration

CONCLUSIONS

In our study of three human and six experimental cases we have demonstrated definite lesions in the medulla as the exciting factor, and believe that the term "essential" as applied cannot be maintained

In our cases the following sequence of events has apparently taken place in the pathology of the kidney

1 An infection which has been localized to foci in the medulla, *no* areas of infection have occurred above the corticomedullary junction

2 The repair of these infected areas by the formation of dense masses of connective tissue

3 This fibrosis has produced an obstruction to the venous return from the medulla and papillae through the venulae rectae

4 As a result of this obstruction, varicosities have developed which not only appear in the substance of the papillae and just under the epithelium covering the papillae, but finally rupture on the free surface of the papillae and discharge their blood

We hope that this work will help to clarify the true cause of these so-called cases of symptomless hematuria, and believe that other men will report similar findings if their cases are studied from the point of view here recorded

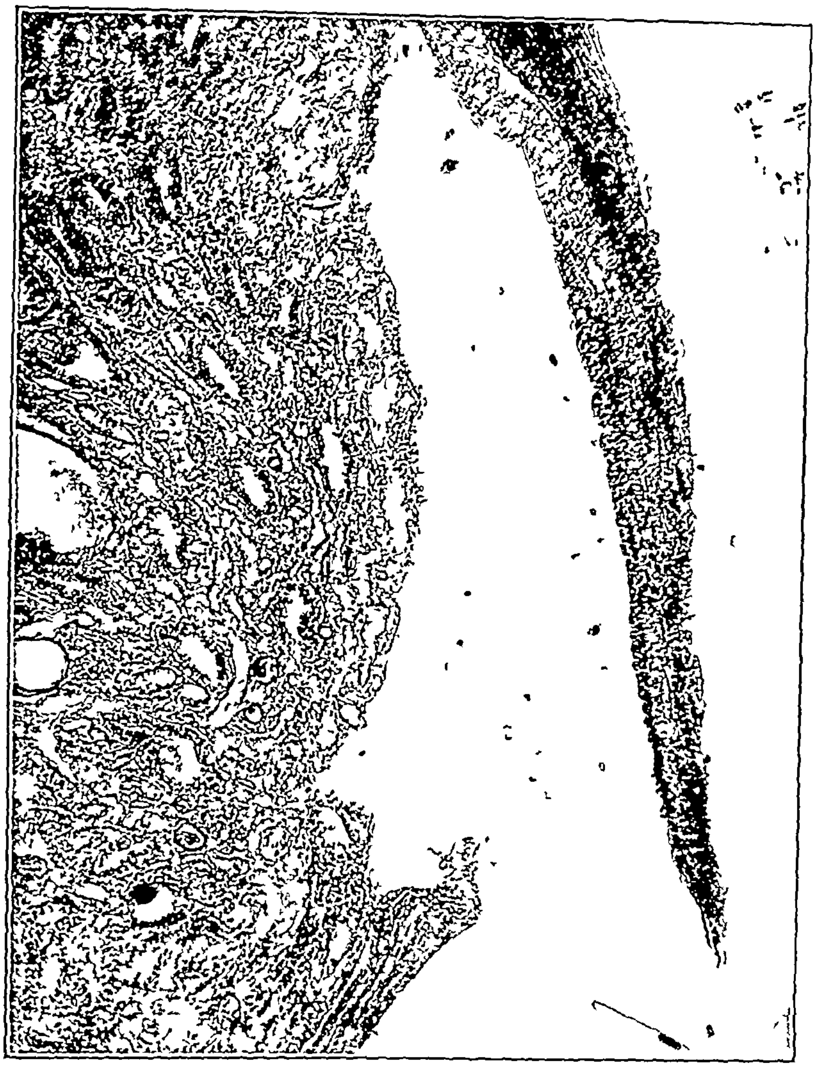

Fig 8—Large vein which has ruptured on the free surface of the papilla and discharged its contents (X 45)

ABSTRACT OF DISCUSSION

Dr Hubert A Royster, Raleigh, N C Dr Payne has discarded the term "essential" The more we study disease the less use we have for such terms I am sure Dr Payne is correct in assuming that this condition of hemorrhage from the papillae does form a certain percentage of the unexplained cases In regard to the etiology, there may be many and various factors to consider The term nephritis is just as little understood today as it was some years ago and the expression nephropathy which the essayist used is probably as good as any to cover all the shades of etiologic meaning Now what may be some of the causes back of the so-called nephropathies? In the first place alcohol and other toxic agents may cause a one-sided nephritis just as well as a bilateral nephritis It may be taken for granted that these agents could produce an affection in one kidney without affecting the other kidney Concerning the pathology, Dr Payne is probably on the right track In many cases it may not be possible to demonstrate any pathologic change whatever In other words, there may be no organic evidence of bleeding, but, if one can discover uniformly such changes as have been described, it might be possible to solve the problem

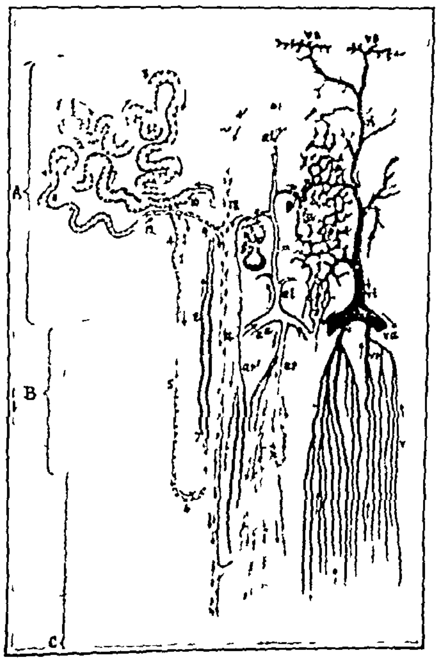

Fig 9—Diagram of renal vessels (from Beattie and Dickson) *A* cortex, *B*, midzone (corticomedullary junction) *C*, medulla Areas *B* and *C* represent points at which the connective tissue causes obstruction to the straight veins

Given, then, a case of one-sided bleeding from the kidney, what shall we do about it? We must not overlook the very important point, that is, the possibility of an early tuberculosis in every case of bleeding kidney I agree that decapsulation is to be condemned, but if it gives the results reported it might not be harmful I remember the incision of the capsule to relieve pain and in some cases it also relieves hemorrhage I would suggest that, in cases where nephrotomy has been done, and nephrectomy decided not to be done, instead of closing the kidney with sutures we might, as I have done in two instances, wrap it up in a bundle as we do a package Instead of having needles going through after being sliced up, wrap the kidney together by catgut as you would tie up a bundle Finally, if most of us had such a case as described by the author we would undoubtedly institute conservative treatment until the actual cause was demonstrated, except in the extreme cases referred to by him

Dr J Shelton Horsley, Richmond, Va This question of essential hematuria has worried all of us who do general surgery Of course, many cases of renal bleeding are due to stones, to tuberculosis, to hypernephroma, but there remains a group which would have been difficult if not impossible to explain Dr Payne's sections show the pathology beautifully and also how easily the lesion might be overlooked The section through the cortex showed perfectly normal structure The papillae give the pathognomonic feature of the disease It is common to find inflammatory lesions in the cortex where we would expect them, particularly in hematogenous infection or nephritis which occurs from toxic material in the blood It is comparatively rare to find lesions in the papillae, but at the same time they do occur there, as Dr Payne has demonstrated The section showing a dilated vein bleeding seems to be conclusive This corresponds with pathology elsewhere, for instance, dilatation of the veins in cirrhosis of the liver Inflammation produces scar tissue which constricts the veins and causes them to dilate distal to the constriction In regard to the treatment, I recall some excellent work done by Moore and Corbett regarding the type of sutures to be used for nephrotomy They show that while the mattress suture controls hemorrhage it tends to destroy the kidney substance by necrosis, and they recommended simple interrupted sutures lightly tied

Dr R L Payne, Jr Norfolk Va There is no question that many of these cases are bilateral, and one kidney may bleed at one time and one at another It is very probable that the focal infections we have observed in the kidney follow along the line described by Eisendrath, namely, some lymphatic infection The pathology we see in these slides shows vessels with free blood, some with clotted blood some with hyaline degeneration, in some organization has occurred These vessels originally dilated before occluding and organization later began in the vessels that bled when finally ruptured That is probably the explanation of how some of these vessels bled and eventually wound up with an ultimate cure by organization and that will, in addition, explain how decapsulation helps to cure them When you decapsulate the handling causes trauma which produces a condition favorable to thrombosis and that is probably how decapsulation cures The condition is really self-limiting in the bulk of the cases

COMPARATIVE RESULTS IN ANTIRABIC TREATMENT

WITH THE PASTEUR METHOD AND WITH DESICCATED VIRUS *

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Pasteur's method for antirabic treatment stands as such an imperishable landmark of experimental medicine that one hesitates to point out even one or two minor defects But the fact is that nearly all who now prepare the virus for treatment, including the Pasteur Institute, have made changes in the original method of preparation In the original method Pasteur found that the serial passage of rabies virus from rabbit to rabbit by subdural inoculation resulted in a steady shortening of the incubation period until it becomes stationary or fixed, with an incubation period of six days The spinal cords of these rabbits gradually lose their infectivity if dried over potassium hydroxid When the temperature is kept at 23 C, the cords are not infective after the ninth day

Pasteur's method of treatment began with the injection of 1 cm of cord dried for fourteen days, followed, day by day, for eighteen to twenty-one days, with cord of increasing infectivity, the two-day cord being the most infective which he felt could be used without infecting the patient The effect of these injections is that in the course of three weeks immune bodies appear in the blood, and those patients survive in whom the incubation period of the infection is longer than the time required for the establishment of an active immunity This required time is from fifteen to twenty days after the completion of the treatment The success of the treatment depends, therefore, on the fortunate circumstances that in man the incubation period of rabies is seldom less than three or four weeks and is usually about seven weeks Pasteur regarded as complete failures only those patients who developed hydrophobia later than fifteen days after the completion of the treatment

The preparation of the cords according to Pasteur's scheme requires the daily inoculation of one or more rabbits and the removal of the cords It is therefore expensive and demands facilities which are to be found only in large, well-equipped laboratories Modifications of the method have had for their object the establishment of an immunity which would appear earlier and be greater than that afforded by the Pasteur treatment This has been sought for by the injection of virus of greater infectivity, by other methods for altering the infectivity of the virus, as, for example, heat, chemicals, dilution, dialyzing, by the simultaneous injection of serum, or sensitized vaccine

Of the various modifications adopted, the earliest was proposed by Hogyes[1] This method is based on the fact that Pasteur's attenuation of cords by drying resulted only in a numerical destruction of the organisms Hogyes therefore devised a scheme of diluting fresh virus and injecting increasing quantities from day to day The use of this scheme has been followed by excellent results Ferran advocated and used small quantities of emulsified fresh cord Proescher injects a relatively thick emulsion of fresh brain, and gives fewer injections Calmette introduced the use of glycerol for preserving the cords Fermi kills the organism by emulsifying the cord in 1 per cent phenol (carbolic acid) and injects this noninfective material He claims his results are better than can be attained with the Pasteur method Marie,[2] in the Pasteur Institute, gives a sensitized virus which has been acted on by antirabic serum His results are better than those obtained in the institute before the adoption of this modification Excellent results have followed the use of virus dialyzed according to the method proposed by Cummings[3] •

The modification of the Pasteur method which I wish to describe now is founded on Shackell's[4] very original investigations on the effect of desiccation in vacuo at a low temperature The earlier experiments are recorded in a joint article with Shackell[4] This method has for its object the preservation of fixed virus, in order that it may be prepared in quantity and be always available for treatment By using both brain and cord, enough material is obtainable for thirty complete treatments with the virus from a single rabbit, and since the material can be stored until needed, there is no waste and no unnecessary work is required of the laboratory staff during periods when patients are lacking or very few Furthermore, with this product, treatment may be administered in less than half the number of days required by the original method

The preparation of the material is as follows Brain and cord, stripped of pia and blood vessels, are ground in a mortar into a homogeneous, thick, paste-like mass, carbon dioxid snow, collected from a tank into a sterile cloth, is added to the paste until freezing is complete and until further grinding reduces the mass to a fine powder This powder is transferred quickly to a cold beaker and placed in a Schibler's jar which has been submerged in a mixture of salt and ice (—18 C) In the upper part of the jar is a beaker of concentrated sulphuric acid A vacuum of less than 2 mm is produced and the powdered brain is kept at —18 C in the salt and ice until desiccation is complete A single brain and cord will be completely dehydrated in from thirty-six to forty-eight hours A more detailed description of the technic may be found

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* Read before the Section on Practice of Medicine at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

1 Hogyes Lyssa in Nothnagle s Spez. Path u Therap Vienna 1897.
2 Marie L etude experimentale de la rage Paris 1909
3 Cummings Jour Infect Dis 1914 xiv No 1
4 Shackell Am Jour Physiol 1909, xxii 325

in the published papers relating to this method[5] If the brain and cord have been thoroughly ground, completely frozen and absolutely dried at a temperature not above —18 C, the resulting powder will be almost as infective as the fresh untreated brain and cord When kept in vacuo at 0 C there is no appreciable loss in infectivity for several months When kept in an ice box (8 to 10 C) for 500 days this powder is five times as infective as an equal quantity by weight of Pasteur's cord that has dried five days[6]

Harvey and McKendrick[7] have shown that when cords are dried slowly over potassium hydroxid the loss of infectivity is proportionate to the loss of water They conclude that the small amount of water remaining in the cord after the ninth day is insufficient to keep the rabies organisms alive Vansteenbergh[8] had already succeeded, some years before our experiments, in preserving the infectivity of rabies virus by drying this very rapidly in vacuo In his experiments the material was spread out in a very thin layer and the vacuum produced very quickly at room temperature The dried powder retained its infectivity for some months if kept in the dark, free from moisture, but the amount of infectivity so preserved was very small Our explanation of the apparently contradictory results of these two methods of dehydration is that in slow dehydration the salts and other soluble materials in the cells of the brain and cord become more and more concentrated until a point is reached at which this concentration becomes sufficiently toxic to kill the enclosed organisms of rabies by direct chemical action In the brain and cord dried over potassium hydroxid the loss of infectivity is proportional to the resultant concentration of the soluble substance Vansteenbergh's partial success in desiccation in vacuo is due to the rapidity of the dehydration and partial avoidance of too great concentration If the cord and brain are frozen and then desiccated, cell after cell is deprived of its ice, molecule by molecule, by volatilization, and, depending on the degree of freezing, there is therefore little or no possible concentration of salts or other soluble products So long as the dried brain is kept dry its infectivity alters very slowly, but if this powder, which is hydroscopic, is exposed to air, water is absorbed, deliquescence occurs, chemical action begins, and all the infectivity is quickly lost The amount of infectivity remaining after vacuum desiccation depends on the degree to which the material is kept frozen during the extraction The preservation of infectivity afterward depends on its absolute freedom from moisture

Numerous tests made with various lots of our desiccated virus showed the loss of infectivity to be constant and uniform, and demonstrated the value of the method as a means of preserving the virus Experiments were therefore begun on dogs and rabbits to determine its value in immunization, and these showed conclusively that the material could be used with great advantage in antirabic immunization of rabbits and dogs The results have recently been confirmed by Poor, Jelnick and Gibson in the New York City Health Department laboratories In a personal communication, Dr Poor has kindly furnished the following protocols of some of the work carried on to determine the comparative value of various modifications of the Pasteur methods with that of the original

Experiment 1 —Pasteur's cord and Harris' desiccated virus were used The animals in each series were treated ten days The virus was sent from Dr Harris' laboratory, age of virus two years The *minimal* infective dose was supposed to be 0 1 mg for the first day's treatment and 0 01 mg for that of succeeding days, but according to our tests they were much lower The exact minimal infective dose was not determined by us The animals treated with this virus received the following doses, which constitutes the ordinary scheme proposed by Dr Harris for treatment of human beings

Day	Units
1st	500
2d	1,000
3d	1,500
4th	2 000
5th	3 000
6th	3 000
7th	3 000
8th	3 000
9th	3 000
10th	3,000

Unless otherwise stated this scheme was followed in all subsequent experiments The rabbits in the Pasteur series received the full doses given to human patients on the first ten days of the regular course of Pasteur treatment

Forty-three days after the end of treatment the animals were infected intracerebrally with the following dilutions of mixed virus

One to 8,000 Harris' Virus
Rabbit 1, discharged after seven weeks
Pasteur Virus
Rabbit 1, paralyzed in thirteen days
Rabbit 2, paralyzed in seven days
Controls
Rabbit 1, paralyzed in seven days
Rabbit 2, paralyzed in seven days
One to 4,000 Harris' Virus
Rabbit 1, remained well for thirty-two days, then develop d snuffles and died
Rabbit 2, discharged after seven weeks
Pasteur Virus
Rabbit 1, paralyzed in seven days
Rabbit 2, paralyzed in six days
Control
Rabbit 1, paralyzed in seven days
One to 1,000
Rabbits of all series showed beginning symptoms of rabies in six days

Experiment 2 —Pasteur and Harris' methods were used, and all animals were treated eleven days Harris' virus was sent from Dr Harris' laboratory The minimal infective dose for the first day's treatment was 0 1 mg, that of virus for succeeding days $\frac{1}{60}$ mg The animals were infected the day after the last injection with the following dilutions of fixed virus

1 to 12,000

Control Rabbit 1, paralyzed in ten days, Rabbit 2, paralyzed in seven days

Pasteur virus and Harris' virus Rabbit 1, discharged in forty days, Rabbit 2, discharged in forty days

1 to 8,000

Control Rabbit 1, paralyzed in seven days, Rabbit 2, paralyzed in eight days

Pasteur virus Rabbit 1, paralyzed in eight days, Rabbit 2, paralyzed in eight days

Harris' virus Rabbit 1, discharged in forty days, Rabbit 2, discharged in forty days

1 to 4,000

Control Rabbit 1, paralyzed in eight days
Pasteur virus Rabbit 1, paralyzed in eight days
Harris' virus Rabbit 1, discharged in forty days

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[5] Harris Jour Infect Dis, 1912, x, 369, ibid, xi, 397 ibid, 1913, xiii, 155, ibid, Ann de l'Inst Pasteur 1912, xxvi 372

[6] Harris and Shackell Jour Infect Dis, 1911, viii, 47

[7] Harvey and McKendrick Theory and Practice of Antirabic Immunity, Calcutta, 1907

[8] Vansteenbergh Compt rend Soc de biol, 1903, lv, 1046

Experiment 3—Harris' series treated ten days, Pasteur series treated twenty-one days, starting eleven days ahead of the Harris series

Harris' virus Virus used for the first day's treatment made by Eli Lilly & Co, minimal infective dose 0 1 mg That for the succeeding days, made by us, minimal infective dose $\frac{1}{200}$ mg, virus one month old On the day after the last injection all animals infected with the following dilutions of fixed virus

1 to 8 000

Control Rabbit 1, paralyzed in seven days, Rabbit 2, paralyzed in seven days

Harris' virus Rabbit 1, discharged after thirty-eight days, Rabbit 2, paralyzed in seventeen days

Pasteur virus Rabbit 1, discharged after thirty-eight days, Rabbit 2, paralyzed in ten days

1 to 4 000

Control Rabbit 1, paralyzed in seven days, Rabbit 2, paralyzed in seven days

Harris' virus Rabbit 1 discharged in thirty-eight days, Rabbit 2, paralyzed in seven days

Pasteur virus Rabbit 1, paralyzed after six days, Rabbit 2, paralyzed in seven days

The conclusions reached by Poor, Jelnick and Gibson is that the desiccated virus produces immunity more quickly than the Pasteur cords

I have used this material during the past four years in the treatment of patients, and have been able to collect data on 1,159 patients treated with it Of these cases, 359 were treated by me, 222 in the State Board of Health laboratory of Indiana by Dr William Shimer, and 618 in the Charity Hospital, New Orleans, by Dr M Couret Of this number, one died during the treatment and one fourteen days after the first injection With these two exceptions, there were no deaths and no cases of paralysis If we follow the example of Pasteur and exclude these two cases the mortality is zero But excluding one death in which symptoms developed on the tenth day during the treatment, and including the other, in which treatment had been completed but in which symptoms developed on the fourteenth day after the first injection, there is a mortality of less than 0 1 per cent, a result that compares favorably with any of the other modifications

Table 1 includes 319 patients treated by me in St Louis and 618 by Dr M Couret in New Orleans

TABLE 1—DATA OF NINE HUNDRED AND THIRTY SEVEN PATIENTS TREATED FOR RABIES

	Head	Hand and Forearm	Body and Lower Extremity	Contact	Total
Rabid	40	209	124	98	471
Probably rabid	25	159	95		279
Unknown	7	61	67	1	136
Probably not rabid	6	25	17		51
Total					937

Table 2 includes 222 patients treated by Dr William Shimer, director of the Indiana State Board of Health laboratory, with virus furnished by Eli Lilly & Co

The amount of desiccated virus and the number of injections used in the experimental work and in the cases treated were decided on after a study of the scheme of Högyes In this scheme Högyes injected 54 575 mg of cord in fourteen days in light cases, and 94 47 mg in twenty days in bites on the face and head Most writers agree that immunity is produced by the more or less altered rabies organism, and that the degree of immunity is proportional to the number of infective specific organisms injected The infectivity of the cord is such that $\frac{1}{40}$ mg is the least amount that will constantly infect rabbits[7] Expressed in terms of infectivity, Hogyes injected in mild cases 2,183 times the minimal infective dose, in severe cases, 3,898 Harvey and McKendrick calculate that in the Pasteur light scheme this number of times the minimal infective dose is 2,160

TABLE 2—DATA OF PATIENTS TREATED BY DR SHIMER

Sex	No Patients
Male patients	67
Female patients	32
Children, both male and female	123
Total	222
Where Bitten or Exposed	**No Patients**
Head	2
Face	26
Hand	67
Feet	13
Legs	36
Arm	25
Body	5
External genitals	1
Cut by knife	1
Abrasion on hands	45
Handling child dying of hydrophobia	1
	222

TABLE 3—RESULT OF EXAMINATION OF ANIMALS

Exposure	No Patients
Bitten by rabid dogs	99
Bitten by dogs with positive gasserian ganglion	60
Bitten by dogs probably rabid	28
Bitten by dogs which got away	25
Bitten by dogs, probably not rabid	1
Cut by knife	1
Bitten or exposed to infection from saliva from cows whose brains were found to contain Negri bodies	8
	222

TABLE 4—TREATMENT

	No Patients
Seven injections 6 750 units	62
Fourteen injections 19 250 units	71
Eighteen injections 27 350 units	99
	222

TABLE 5—NATURE OF THE WOUNDS AND EXPOSURE

Character of Exposure	No Patients
Slight bites	74
Severe bites	103
Exposed to infection by contact	44
Handling hydrophobia patients	1
	222

The minimal infective dose of desiccated brain and cord is $\frac{1}{250}$ mg, and one can easily inject many times the total infective doses usually contained in Pasteur's scheme with a much smaller proportion of foreign nerve material I prefer to give 500 minimal infective doses, or units, at the first injection, 1,000 units at the second, 2,500 each at the fifth, sixth and seventh In severe cases the daily dose after the fourth injection may be 3,000 The usual mild case is treated in six or seven days, severely bitten patients are treated ten to fifteen days Mildly injured persons received from 7,000 to 10,000 units Dangerously bitten patients have received 30,000 to 70,000 units, or twenty times more than that given by Pasteur In the treatment of a dangerously bitten patient the following record will serve as an example

J M man, aged 24 years, bitten July 8, 1915, on the septum of the nose by his own dog The wound bled freely, but was not cauterized The dog developed rabies two days later, and died five days later Negri bodies were present Treatment was begun six days after the injury Injections were made as shown in Table 6

Of the 1,159 persons treated with this material, two died of hydrophobia Couret[9] states the single failure in the Charity Hospital cases was that of a 2-year-old negro child who received a slight wound over the right eye Oct 6, 1915 Eight days later the mother applied for treatment, and the treatment was begun on that day On the eleventh day of a fifteen-day treatment, the child developed symptoms of hydrophobia, and the treatment was discontinued The child died two days later The wound was not cauterized at the time the injury was inflicted, and when the patient came for treatment, the wound was completely healed

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[9] Couret Personal communication to the author

TABLE 6—ILLUSTRATIVE ANTIRABIC TREATMENT

Date	Amt, Mg	No Units
7/14	50	500
7/15, a m	15	1,000
7/15, p m	25	2,000
7/16, a m	10	2 000
7/16, p m	15	3,000
7/17, a m	15	3,000
7/17, p m	15	3,000
7/18	20	4,000
7/19, a m	15	3,000
7/19, p m	15	3,000
7/20, a m	15	3,000
7/20, p m	20	3,000
7/21	20	4,000
7/22	15	3,000
7/23	20	4 000
7/24	20	4,000
7/25	20	4,000
7/26	25	5,000
7/27	20	4,000
7/28	20	4,000
7/29	20	4,000
Total	315	66,500

The other death occurred in my own series The history in this case is as follows

L P, man, aged 52, farmer, was bitten July 1, 1913, by his own dog, which was killed and in whose brain Negri bodies were abundant The patient was thrown to the ground by the dog, which then grabbed the hand in his mouth with the resulting extensive lacerations and deep penetrating wounds Treatment was begun five days later, the injections being as shown in Table 7

TABLE 7—TREATMENT IN THE CASE OF L P

Date	Mg	No Units
7/ 6/13, a m	40	500
7/ 6/13, p m	20	1 500
7/ 7/13, a m		1,000
7/ 7/13, p m		1,500
7/ 8/13, a m		2,000
7/ 8/13, p m		2 000
7/ 9/13, a m		2,500
7/ 9/13, p m		2,500
7/10/13		2,500
7/11/13		2,500
7/12/13, a m		2,500
7/12/13, p m		3,000
Total	60	24 000

The twelve injections were given within a period of seven days at the urgent request of the patient, who desired to return home at harvest time After his return he worked in the sun during exceedingly hot weather and became very much exhausted On July 21, twenty days after he was bitten and fifteen days after the first injection, symptoms of hydrophobia appeared He died of convulsions on the twenty-seventh

If the value of this material in antirabic treatment can be judged by this record of 1,159 cases treated with but these two failures, in both of whom the disease developed before the possibility of antibody formation, the results obtainable will compare favorably with those obtained by other modifications of the original method

Assuming from these data that the material has an efficient immunizing power, we can see that it possesses another, though minor, advantage over the Pasteur method The average time required for the complete administration of the treatment is less than one-half the time required by the Pasteur method The 936 patients treated by Couret and by me averaged less than ten days per patient, a saving of more than 9,000 days of treatment over what would have been required had we followed the Pasteur scheme This is a matter of great importance to those who are obliged to travel from home to the city for treatment As a concrete instance, the State Board of Health of Indiana has a fund for caring for indigent patients while they are receiving antirabic treatment In one year the amount spent by the state for board was $900 less than it would have been had these patients received the usual Pasteur scheme

704 Metropolitan Building

ABSTRACT OF DISCUSSION

Dr Samuel James Meltzer, New York I would like to ask Dr Harris whether the dried virus could be pulverized and whether it could then stand the sterilization by dry heat without the effective part of the virus being destroyed That the tissue, when dried, is more effective, reminds me of the statement of Dr Novy that the addition of water to some substance reduces its anaphylactic effects

Dr W W Tompkins, Charleston, W Va I wish to report a case in which there was a short period of incubation One year ago last August a patient was bitten on the hand by a dog The wound was sucked and over the wound was placed ordinary tobacco The following Saturday the patient developed rabies with violent strangulation and choking and could not swallow fluids On Saturday, one week later, I was called to travel a distance of seven miles, and found the patient with distressed and drawn features He was rational, but afraid I asked him to drive to town, and he said he would The symptoms had already developed At 2 or 3 o'clock that night he got out of the hospital and went back home At 5 o'clock he had a severe convulsion and died In this case I was impressed by the fact that in crossing the creek he had no difficulty about his larynx, but only when fluids were present Three boys had been bitten by the same dog, the dog was killed and the head and spinal column sent to a pathologist, who said it was a case of genuine rabies He advised that no time be lost, but that the cases be treated at once One case was treated with serum, another by a "mad stone," the third by application of nitric acid to the wound The question arises, was it a case of rabies or a mistaken diagnosis? A variety of treatments were tried and with equal good results

Dr Robert Alway Peers, Colfax, Calif We have had considerable experience with rabies during the past few years in California where rabies was epidemic and spread from the southern to the northern part of the state Several hundred cases were treated at the State Laboratory at Berkeley The length of time necessary to immunize a patient is extremely important, and any method which shortens the time of immunization is an advance Not infrequently a person is bitten by a dog while an epidemic of rabies is prevalent in the community It is not advisable to kill the dog at once because of the danger of killing the animal before the disease is advanced sufficiently to make a laboratory diagnosis possible The dog should be kept chained and if he has rabies he will die within a few days If the dog is kept several days before a diagnosis of rabies is made, there are then required twenty one days treatment by the Pasteur method, and later fifteen days for immunization to become complete—more than forty days altogether, which is very near the danger line For this reason, the method the doctor described, by shortening the time of immunization, is a great help

UREMIA

A DIFFERENTIATION OF TYPES *

NELLIS B. FOSTER, M.D.
NEW YORK

When Bright noted an increase of urea in the blood and fluids of patients with severe nephritis and gave the name uremia to a group of symptoms likely to develop with these cases, he believed urea to be a highly toxic substance. The name uremia remains to us, although the term embraces now considerably more than urea intoxication. Under it are grouped several syndromes referable chiefly to the nervous system and with which no constant lesions are noted at necropsy outside the kidneys. Bright's observation that urea is increased in amount in the body fluids with certain renal defects established a principle which has been remarkably stimulating to later studies. This idea initiated that conception of uremia commonly called the retention theory, by which one means that some or all of the nitrogenous bodies normally excreted through the kidneys are, when these organs become diseased, retained in the body and give rise to symptoms. The corollary to this proposition, that the urine is specifically toxic, was debated and abandoned in the last century without elucidating any undisputed scientific facts.

So then we are still confronted by the question: Is the syndrome uremia due to a retention in the body of normal urinary substances, or is it induced by a wholly abnormal type of metabolism, resulting in new toxins? I am not intending to labor this question unduly, but I wish to bring to your attention some well-known facts which show just what may be expected from the retention of urinary bodies and then to apply these facts to uremia.

The state of complete anuria, that is, absolute retention, bears directly on this point. Whether induced by impacted renal calculus or by the removal of the only kidney or by such poisons as mercuric chlorid, the symptoms resultant are in all cases almost identical.

I have had an opportunity to study three persons in whom the only functioning kidney was removed surgically because of some diseased condition; the remaining kidney in these cases was infantile, atrophic and of no use. These cases all presented a condition of anuria, hence of complete retention in the body of all substances normally excreted through the kidney. It is well known that with such cases there are few or none of those symptoms which demark our conception of spontaneous uremia. Convulsive seizures, for example, are not observed. Nervous phenomena are conspicuously wanting, gastro-intestinal disturbances absent or appear only as moribund manifestations. The last case I saw was without significant symptoms for eight days and then an increasing sopor developed and death ensued within a few hours. This is the common experience and Ascoli was positive that the picture is quite different from that associated with renal disease and he called this syndrome urinary poisoning. The same symptoms are found with anuria due to mercuric chlorid poisoning, of which we see so many cases in New York, and I have induced an analogous state in dogs by nephrectomy, by ligation of both ureters, and by ligation of the renal arteries. The essential positive symptoms, either with man or in experimental animals, resulting from absolute retention, are progressive asthenia and anorexia, later, stupor and death. These facts I bring out with some prominence, since they enter into the more complex picture of true uremia. Urinary poisoning is a pure type.

Urinary poisoning, as I have described it, is produced by some rather sudden change in the excretory organs resulting in a prompt flooding of the tissues with nitrogenous waste products. Death is then a matter of days only. Now when the failure of elimination is not so rapid and the waste products accumulate in the tissue fluids more gradually, it is conceivable that the cells acquire a certain degree of tolerance and are not so injured as appears to be the case when the change is sudden. This conception has ample basis in analogy and explains prolongation of life under conditions which if effected suddenly lead quickly to dissolution. It is necessary to bear this possibility in mind as we proceed.

A rather close resemblance to the clinical picture of urinary poisoning is produced when, with advanced chronic nephritis of the hypertensive variety, there is added the complicating factor of cardiac dilatation and insufficiency. Let me explain just what appears to happen. With this type of nephritis the kidney has lost the power to secrete a concentrated urine and this is most conspicuous with respect to nitrogen. While a normal kidney on demand secretes urine containing 1.5 per cent. of nitrogen, the granular kidney may at best attain only 0.6 or 0.7 per cent., and not infrequently cannot arrive at 0.5 per cent. of nitrogen. Success then in freeing the body of its nitrogen waste is attained by increase of the urine volume. The normal kidney in secreting 1,000 c.c. of urine containing 1.5 per cent. nitrogen, has secreted 15 gm. of nitrogen, but the diseased kidney in order to secrete 15 gm. of nitrogen must secrete 2,500 c.c. of urine containing 0.6 per cent. nitrogen.

But with the increased urine volume the burden of work is transferred from kidney to heart. Now if the heart breaks down under its burden the volume of urine of course falls, and the nitrogen excretion falls with it, since the kidneys cannot accommodate themselves by concentration of urine as in pure cardiac disease. These conditions lead to nitrogen retention and an accumulation of slag in fluids and tissues. You will note that these conditions are the same in kind as with urinary poisoning; the difference is in degree, and therefore the clinical picture is slower in developing and more protracted. There is here gradually developing stupor, asthenia and anorexia. There is added one important symptom, namely, a mild delirium, which may be simply a mental clouding associated with disorientation, chiefly of place; occasionally there are real delusions of the persecution type. Edema may or may not be marked, dependent apparently on the degree of cardiac embarrassment, since when a patient improves the edema is prone to diminish as the blood pressure becomes more elevated. Symptoms indicating irritation in the motor centers are not observed when this type is pure.

This type of uremia is a mixed picture, but fundamentally it is a urinary poisoning, a retention syndrome induced directly by cardiac failure. There is found, of course, in the blood an increase in nonprotein nitrogen, which may be considerable, occasionally but slight, in degree. This type of uremia has in my experience been a rather common sequel to protracted

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* Read before the Section on Practice of Medicine at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

hypertension, existing in the beginning without marked evidence of renal damage, what we commonly regard as primary arteriosclerosis When these cases escape their chief danger, cerebral hemorrhage, a nephritis usually develops, but the kidney found at necropsy, while showing fibrosis, does not present the degree of destruction of renal elements noted in some other types of nephritis

The clinical picture of nephritis which we associate with the large white kidney appears to be as little complex in reference to physiologic function as any type of renal disease The clinical manifestations are related chiefly to disturbances in water and salt excretion There is no unanimity of opinion as to the interpretation to be given the facts, but all concur that the conspicuous departure from normal relates to poor excretion of water and salt, the consequent anasarca, and the relatively normal excretion of urea and other nitrogen fractions This type of nephritis but seldom progresses to uremia, it being the rule in my experience that protracted cases develop some terminal infection Exceptionally, however, during the last period of life some uremic symptoms are in evidence These are vomiting, headache, stupor, amaurosis due to edema of the retina, and finally coma

Contrary to the statement of some, I have never seen convulsive seizures The blood pressure remains normal, or subnormal The blood and tissue analyses do not indicate any notable degree of nitrogen retention, even when corrected for the water excess At necropsy, aside from nephritis, the conspicuous condition is edema, and this is peculiarly notable in the brain and meninges Arguing from analogy, that is, the similarity of this picture clinically with some others associated with marked cerebral edema, I have felt that this edema must be in some way accountable for the cerebral symptoms In our present state of ignorance concerning the causation of edema generally this idea cannot rest on a firm scientific basis I have but one supporting fact, namely, that when lumbar puncture is done in these cases, the cerebrospinal fluid is found to be under increased pressure and after some fluid is removed there is a temporary clearing of the mental state of the patient This hypothesis as to the causation of the stupor and coma observed in cases of nephritis with chlorid retention is advanced with every reservation Until we understand edema we will not understand this type of uremia The type is, I think, clear cut and associated with a form of nephritis which is well demarked by the functional change in respect to water and salt excretion,[1] the chloremique of Widal Pathologically the kidney shows parenchymatous nephritis, that is, the large white kidney

When this type of uremia is unmixed, there is never convulsive uremia as a sequel On the other hand, a mixed nephritis may give rise to edema as a conspicuous symptom, but there is associated then also an increased blood pressure and an increased nonprotein nitrogen When uncomplicated, the chlor-retention nephritis shows a normal or subnormal blood pressure and low nonprotein nitrogen The degree of albuminuria helps not at all in the diagnosis

Of the various manifestations due to uremia, none demarks a type so clearly as convulsive seizures Convulsive or epileptiform uremia has been regarded by all students as different in causation, peculiar and specific In discussions of uremia with convulsions it is commonly classified as a toxemia, although a toxin has never been isolated There are several facts that I wish to call to your attention which lend some support to the idea that a toxin may be present In the first place these cases, on metabolic study, all show periods of clear-cut nitrogen retention There is as a rule an increase of nonprotein nitrogen in the blood also Now, whereas the urine shows but 6 or 7 per cent undetermined nitrogen, the blood nitrogen may be 20 per cent or even more undetermined This fact indicates either a selective excretion or formation of nonexcretable substances These facts apply more or less to all types of nephritis with retention Finally, all the organic poisons known are nitrogen containing compounds Considerations of this sort brought out in my studies several years ago led me to think that an effort might be made to isolate a specific toxin from the blood or tissues in these cases and I believe this has been accomplished A crystalline substance has now been separated from the blood in a series of cases of convulsive uremia This substance is highly toxic, 200 c c of blood contains enough to kill a guinea-pig The substance cannot be detected in normal blood or in blood in any diseased state except uremia of this type The symptoms produced in animals after injection into the peritoneal cavity are dyspnea, fecal discharges, convulsions or muscular twitchings, coma and death Of the chemical nature of this compound, its source in the body, its effect in producing organic changes, we cannot speak at this time

Granting for the moment that this substance is specific and peculiar for one type of uremia, then the question arises, is it a normal catabolic substance which is in health excreted in urine, or is it a product of abnormal metabolism, a result of perverted processes instituted by renal disease? If this compound is a normal excretory product, then it should accumulate in blood and tissue in conditions of anuria, but as already mentioned, these cases do not resemble uremia One case of complete anuria due to the removal of the sole functioning kidney (the other being infantile and atrophic) was investigated This patient died nine days after the operation and immediately post mortem about 1 liter of blood was aspirated from the jugular vein This blood yielded no toxic substance The degree of retention is indicated by the nonprotein nitrogen which was 126 mg per 100 c c of blood The evidence of one case is not adequate, but it supports the original conception that in the convulsive type of uremia there is an abnormal metabolism, as well as a nitrogen retention

There are then, according to my present conception, three pure basic types of uremia The first is a simple retention of urinary nitrogenous waste, a urinary poisoning, the second is due to defective water and salt metabolism, resulting in cerebral edema, the third type is a toxemia, resulting from an abnormal catabolism Two of these are dependent wholly on failure of excretion, either of nitrogen, water, or salt, a third, while it may show each and all of the three enumerated defects, is demarked by another element foreign to normal catabolism and resulting in toxin formation, which is manifested clinically by convulsive seizures

Now clinically we see only exceptionally these types uncomplicated, just as we see but exceptionally pure types of renal disease, and this is so whether we consider the case from the functional physiologic aspect or that of microscopic pathology The majority of cases that evidence nitrogen retention also have more or less edema, at least at periods Those in which edema is the striking phenomenon have usually slight or marked nitrogen retention if the case is studied for sufficient periods The sections from these kidneys do not disclose a uniform picture, in one field the tubules or some part of these tubules appear chiefly diseased, in another section from the same kidney it may be that glomeruli seem more damaged, or the arterioles And it is impossible to surmise from the appearance of a damaged tubule as to its degree of functional impairment Hence uremia is ordinarily a complex picture, resulting from a mixture of physiologic defects and stamped clinically by that one which is predominant Only by a rather careful study of many cases at bedside, in the laboratory, and at the necropsy table does one arrive at a conception of pure types Pure types do occur, but they are the exception in my experience These types fall into three main groups, depending on the nature of the functional defect in the kidney (1) retention type, the urinary poisoning of Ascoli, (2) cerebral edema type, (3) toxic type, or epileptiform uremia

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[1] While the nitrogen metabolism shows no conspicuous *abnormality*, yet in every case that I have *had an opportunity* to observe a careful metabolic study has revealed a slight degree of nitrogen retention, a plus balance

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THE VALUE OF RECENT LABORATORY TESTS IN THE DIAGNOSIS AND TREATMENT OF NEPHRITIS

WITH SPECIAL REFERENCE TO THE CHEMICAL EXAMINATION OF THE BLOOD *

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Chemical researches have recently added much to our knowledge of many pathologic conditions, but it is doubtful if any disorder has profited more than nephritis The investigations have given us a clearer insight into this condition, have aided in diagnosis and prognosis and finally have been a guide to treatment

For a long time the clinician has been accustomed to rely on the examination of the urine for his index of the efficiency of the kidney In nephritis the volume, specific gravity, albumin, casts, and occasionally, the chlorids and total nitrogen or urea have covered the examinations made More recently the ability of the kidney to eliminate various substances administered, either per os or parenterally, has been practically employed as a means of determining its functional activity The phenolsulphonephthalein test of Rowntree and Geraghty [1] and the lactose and potassium iodid tests of Schlayer [2] have found extensive use, especially the former The phenolsulphonephthalein test, although introduced only six years ago, has received almost universal recognition

The finding of albumin and casts in the urine is unquestionably of great diagnostic value in nephritis and of considerable prognostic value in the acute and subacute forms of the disease In the chronic forms, however, there has been a growing tendency to place less and less reliance on this information from the standpoint of prognosis

Recently Mosenthal [3] has excellently discussed a number of well-known clinical observations on the urine He has pointed out that a very considerable amount of information may be obtained from the observations of the volume, specific gravity, chlorids and nitrogen output of the night and two-hour day urine specimens of nephritic patients, when placed on a definite test diet The normal individual is able to secrete at night a urine of high concentration, but in nephritis the specific gravity may be fixed at a constant level with a very definite concentration of chlorids and urea The importance and diagnostic value of this has not been fully appreciated, primarily because of the time and care required in the collection and analysis of the specimens

The introduction of the phenolsulphonephthalein functional kidney test by Rowntree and Geraghty in 1910 not only supplied us with a most valuable diagnostic and prognostic test, but furnished the impetus in this country to numerous investigations on the functional activity of the kidney With the introduction three years later of simple methods of blood analysis, especially at the hands of Folin and his co-workers, the possibilities of these new methods as practical diagnostic tests were quickly appreciated

In some quarters the nonprotein or incoagulable nitrogen alone has been employed as a test of kidney activity, while in others the urea has been utilized McLean,[4] in particular, has emphasized the value of a comparison of the urea of both blood and urine, somewhat after the method employed by Ambard So far as we are aware, in institutions other than our own, the uric acid has been used chiefly in connection with the diagnosis of gout

Although considerable attention has been given to the urea and nonprotein nitrogen [5] of the blood in nephritis, scant consideration has been accorded the uric acid and creatinin It is true that the greater part of the waste nitrogen is eliminated in the form of urea, but it does not necessarily follow from this that data on uric acid and creatinin are unimportant and uninteresting We do not believe that it is possible to make satisfactory deductions regarding nitrogen retention from the urea or nonprotein nitrogen determinations alone The scheme we now employ for the examination of the blood entails the determination of the uric acid, urea, creatinin and sugar as a routine with estimations of the carbon dioxid combining power according to Van Slyke in cases in which this appears to be indicated The determination of the urea concentration of the blood is, we believe, of more value than that of the nonprotein nitrogen for the reason that it represents the retention of a definite compound and, further, is more easily and accurately determined

The phenolsulphonephthalein test is so far superior to any other general functional kidney test that one scarcely need mention any other test in a brief discussion In comparison with the chemical examination of the blood it is believed that the latter method gives

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* Read before the Section on Practice of Medicine at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Rowntree and Geraghty Jour Pharm and Exper Therap 1910 i 579

[2] Schlayer and Takayasu Deutsch Arch f klin Med 1910 1911 ci 333

[3] Mosenthal Arch Int Med 1915 xvi 733

[4] McLean Jour Exper Med 1915 xxii 212 366 Clinical Determination of Renal Function by an Index of Urea Excretion The Journal A M A Feb 3 1916, p 415

[5] A very complete discussion has been given by Tileston and Comfort Arch Int Med, 1914 xiv 620

much more definite information in many cases In our work, however, we have almost invariably employed the phenolsulphonephthalein test, either previous to or in conjunction with the blood examination Another very important point in favor of the chemical examination of the blood, compared with the quantitative examination of the urine, is the difficulty and time required in the collection of urine specimens It is our opinion that the chemical examination of the blood, when good laboratory facilities are available, requires less of the physician's time and gives him more definite information

Both Mosenthal[6] and Foster[7] have called attention to the fact that the increase in the nonprotein nitrogen of the blood in nephritis is quite insufficient to account for the amount of nitrogen retention Despite this fact, the degree of the retention of the various waste products affords an excellent index of the severity of the condition, and probably a fair index of the retention in the later stages of the disease, particularly as regards the uric acid and creatinin

TABLE 1—URIC ACID, UREA NITROGEN AND CREATININ OF BLOOD IN INTERSTITIAL NEPHRITIS*

Date, 1915 16	Case	Age	Sex	Diagnosis	Condition	Mg per 100 C c of Blood			Phthalein 2 Hrs, per Cent	Systolic Blood Pressure	Urine	
						Uric Acid	Urea N	Creatinin			Albumin	Casts
I												
9/17	H L	23	♂	Pulmonary tuberculosis	Unchanged	6 5	16	2 7	58	130	++	+
8/10	E H	41	♂	Pericarditis	Unchanged	5 6	13	2 1	45	150	—	—
10/12	F D	45	♂	Interstitial nephritis	Unchanged	5 5	12	2 5	37	185	—	+
3/ 6	B D	35	♀	Diffuse nephritis	Unchanged	9 6	10	2 4	45	175	+	+
II												
8/11	J J	65	♂	Early interstitial nephritis	Unchanged	9.5	25	2 5	13	185	+	+
7/21	D S	56	♂	Early interstitial nephritis	Unchanged	6 6	24	3 3	26	185	—	+
9/21	D D	52	♂	Early interstitial nephritis	Unchanged	8 7	20	3 6	20	100	+	+
8/ 3	C M	54	♂	Early interstitial nephritis	Unchanged	6 3	31	2 0	23	150	—	—
III												
1/ 6	L P	57	♂	Moderately severe chronic interstitial nephritis	Improved	8 0	80	4 8	0	240	++	++
3/ 1						4 9	17	2 9	10	170		
4/23	J P	34	♂	Moderately severe chronic diffuse nephritis	Improved	8 3	72	3 2	25	239	+++	++
5/21						5 3	21	1 9	43	145		
1/15	W C	49	♂	Moderately severe chronic diffuse nephritis	Improved	9 5	44	3.5	38	210	++	++
1/28						2 5	19	1 9	52	120		
IV												
4/11	L C	50	♀	Typical fatal case of chronic interstitial nephritis	Died	22 4	236	16 7	0	210	++	Pus
3/23	T D	34	♂	Typical fatal case of chronic interstitial nephritis	Died	15 0	240	20 5	2 3	225	++	+
1/25	S H	87	♂	Typical fatal case of chronic interstitial nephritis	Died	14 3	263	22 2	0	220	++	+
4/15	J W	34	♂	Typical fatal case of chronic interstitial nephritis	Died	8 7	144	11 0	Trace	225	+	+

* Normal findings uric acid from 2 to 3 mg urea nitrogen, from 12 to 15 mg creatinin, from 1 to 2 5 mg per 100 c.c
The symbol ♂ signifies male ♀ signifies female

In our studies[8] on the uric acid, urea and creatinin of the blood it was soon noted that high uric acids were frequently found without any other retention, while creatinin appeared to be retained only in the last stages of the disease In comparing the concentration of these waste products in blood and urine, it was observed that the kidney was able to concentrate the creatinin 100 times, the urea eighty times, but the uric acid only about twenty times In other words, it would appear that, normally, creatinin is the most readily and uric acid the least readily eliminated by the kidney, with urea standing in an intermediate position From this it is logical to expect that the excretion of uric acid would be the first to be impaired, and in nephritis our blood studies appear to indicate that a retention of uric acid is generally the first to become evident In harmony with this hypothesis, we should next expect a retention of urea and lastly that of creatinin That such is the case is quite evident from an examination of Table 1, giving analyses of typical cases of patients suffering from various stages of nephritis

According to this view a retention of uric acid should constitute one of the early signs of incipient interstitial nephritis, while an appreciable retention of creatinin should indicate a grave impairment in the functional condition of the kidney and therefore should be a valuable prognostic test

Theoretically, the creatinin of the blood should be a safer index of a lowered kidney activity than the urea, for the reason that creatinin on a meat free diet is entirely endogenous in origin and its formation (and elimination, normally) very constant For the same reason it must be evident that a lowered nitrogen intake may reduce the work of the kidney in eliminating the urea and to a certain extent the uric acid, but cannot affect the creatinin to any extent The handicap of a high creatinin accumulation, the kidney is, apparently, never able to overcome

Our blood studies show that many early cases of nephritis, probably of the interstitial type, give blood pictures in which the essential feature is the high uric acid The urea and creatinin are frequently normal, though sometimes appreciably increased As the condition of the cases of this type becomes more severe, the retention of urea increases, until we have high values for urea as well as uric acid If improvement takes place, the concentration of urea gradually falls until the picture is that of the preceding group If, on the other hand, the case goes on to fatal termination, the retention of uric acid and urea is followed by that of creatinin, the concentration of which may reach twenty times the normal

As already noted, the rise in the concentration of the uric acid of the blood appears to be an excellent early sign of chronic (interstitial) nephritis[9] The diagnostic value of the blood uric acid in comparison with other tests is well brought out in Table 2. It is obviously important in this connection to bear in mind the association of uric acid retention with gout,[10] although the retention here must likewise be ascribed to the same cause, namely, a lowered kidney permeability.

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[6] Mosenthal and Richards Arch Int. Med, 1916, xvii, 329

[7] Foster and Davis. Am. Jour. Med Sc, 1916, cli, 49 Myers and

[8] Myers and Fine Jour Biol Chem, 1915, xx, 391 Myers, Fine and Lough Lough Arch Int. Med, 1915, xvi, 536 This paper describes the estimation Arch Int Med, 1916, xvii, 570 At the suggestions of the uric acid, urea and creatinin in the blood of one of us (M), E Leitz of New York has recently made a very simple and inexpensive colorimeter which may be used for these determinations

[9] Myers, Fine and Lough Footnote 8

As a prognostic test the blood creatinin has been found of very great value. It is superior to the phenolsulphonephthalein test, since changes in the patient's condition are clearly shown, while the phenolsulphonephthalein test is continuously negative. Attention was called to this test nearly a year ago,[11] but we now have more than three times as many cases on which to report. All patients whom we have been able to follow for any length of time who had over 5 mg creatinin to 100 c.c. of blood have died. Our observation on these cases, together with the phenolsulphonephthalein outputs, are summarized in Table 3. In this list it will be noted that only three (one patient has since died) of the patients having over 5 mg remain alive, and these are patients who have been allowed to leave the hospital only recently. Only one of these patients, however, can be called improved.

Our experience with the ratio between the urea of the blood and urine according to the formulas worked out by Ambard and by McLean has been rather disappointing. In comparing the uric acid, urea and creatinin of the blood and the phenolsulphonephthalein of the urine with the index of McLean[4] in thirty cases, the index appeared to give no additional information over the blood urea with the possible exception of one case. In this case a blood urea nitrogen of 33 mg was encountered with an index of 198. In the above thirty cases the indexes ranged from 3 to 342. It is quite possible that this is too small a number of cases from which to make deductions, although Addis and Watanabe[12] recently concluded that "The rate of urea excretion in man varies under physiologic conditions in a manner which cannot be explained by the concentrations of urea in the blood and urine." Dr. Watanabe has been kind enough to recalculate some of their data into terms of the McLean index, the results indicating that according to this formula the indexes on normal subjects may vary between 25 and 250, a rather wide variation.

The patients whom we have had an opportunity of studying have been largely patients suffering from chronic interstitial (or true) nephritis. The condition of the blood in parenchymatous nephritis (nephrosis) is in our experience very different from that of the interstitial type. In the parenchymatous form one finds only a moderately increased blood urea, but differing from the interstitial type, an increased concentration of chlorids is frequently present, as might be expected from an accompanying edema.

As is evident from dyspnea, many advanced cases of nephritis develop an acidosis, due not to an increased formation of acid substances as in diabetes, but to the impaired elimination of the normally formed acid substances. During the last two or three years we have been accustomed to ascertain the degree of this acidosis from the carbon dioxid tension of the alveolar air[13] or the hydrogen ion concentration of the blood. Van Slyke[14] has recently shown that the degree of this acidosis may be more simply and more accurately determined by ascertaining the carbon dioxid combining power of the blood plasma. For this purpose he has ingeniously devised a very simple apparatus. This instrument has been in continuous use in our laboratory for the past year. Normally the carbon dioxid combining power varies from 53 to 77 c.c. (corrected) per 100 c.c. of plasma. In nephritis it is generally somewhat reduced, 40 to 50, but may fall to as low as 25 shortly preceding death.[15] It would appear that in some cases the acidosis was a more important factor in the terminal symptoms than the nitrogen retention. As a guide to the treatment of the acidosis the determination has been found very valuable. One case may be mentioned. W. C. (Table 1, Group 3, Case 3) was admitted in coma with a carbon dioxid of 22. After an infusion of sodium bicarbonate, the patient quickly revived and on the second day showed a carbon dioxid of 58.

That many advanced cases of diabetes develop nephritis is a well-known clinical observation. In the early cases of diabetes there is a direct relation between the hyperglycemia and glycosuria, but this is certainly not true in cases of long standing with nephritis. It has been recognized for some time that hyperglycemia was present in many cases of advanced interstitial nephritis, though glycosuria was absent. The blood picture that we have observed in some cases

TABLE 2.—THE URIC ACID OF THE BLOOD IN CASES OF INCIPIENT INTERSTITIAL NEPHRITIS

Case	Age	Sex	Diagnosis Remarks	Mg. to 100 C.c. of Blood			Phthalein 2 Hrs. Output per Cent	Blood Pressure		Urine	
				Uric Acid	Urea Nitrogen	Creatinin		Systolic	Diastolic	Albumin	Casts
1 J. J.	65	♂	Interstitial nephritis	9.5	25	2.5	13	185	90	+	+
2 E. B.	46	♀	Fibrillation	9.3	14	2.9	44	120	90	—	—
3 D. D.	52	♂	Cirrhosis of liver, interstitial nephritis, chronic alcoholism	8.7	20	3.6	20	100	87	+	+
4 B. D.	25	♀	General edema	7.7	20	2.6	45	168	100	+	—
5 M. K.	49	♂	Carcinoma of stomach	7.5	16	2.2	50	150	90	—	+
6 D. S.	56	♂	Interstitial nephritis	7.1	16	2.0	26	185	110	—	+
7 A. R.	57	♂	Carcinoma of stomach, interstitial nephritis	6.8	20	1.8	40	140	80	—	+
8 H. L.	23	♂	Pulmonary tuberculosis, tuberculosis of kidney	6.5	16	2.7	58	130	90	++	+
9 C. M.	54	♂	Hypothyroidism, interstitial nephritis	6.3	31	2.0	45	150	90	—	—
10 M. McA.	44	♂	Syphilis, interstitial nephritis	6.3	17	2.7	38	185	80	++	+
11 W. B.	71	♂	Chronic arthritis, arteriosclerosis, interstitial nephritis	6.1	12	2.4	65	145	80	+	+
12 E. H.	41	♂	Pericarditis, moderate alcoholism	5.6	13	2.1	45	150	65	—	—

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[10] Fine: The Relation of Gout to Nephritis as Shown by the Uric Acid of the Blood, The Journal A. M. A., June 24, 1916, p. 2031.
[11] Myers and Lough: Footnote 8.
[12] Addis and Watanabe: Jour. Biol. Chem., 1916, xxiv, 203.
[13] Very recently Marriott (The Determination of Alveolar Carbon Dioxid Tension by a Simple Method, The Journal A. M. A., May 20, 1916, p. 1594) has described a simple technic for carrying out this test, thus rendering it directly available to the clinician.
[14] Van Slyke, Stillman and Cullen: Proc. Soc. Exper. Biol. and Med., 1915, xiii, 39.
[15] Quintard and Fine: Unpublished observations.

of advanced diabetes is typical of interstitial nephritis,[9] that is, high uric acid values, *frequently* with moderate retention of urea These patients had marked hyperglycemias, in one case 1 1 per cent, but were unable to secrete urines of high sugar content Cases might be cited[16] with blood sugars up to 0 3 per cent and above without glycosuria The condition the clinician is endeavoring to treat by restricting the carbohydrate of the diet is the hyperglycemia, but the glycosuria is sometimes a very poor index to this condition Since the determination of blood sugar may now be very simply carried out, the estimation of the sugar of the urine should be supplemented by the determination of the sugar of the blood

COMMENT

Of the large number of methods used in the past few years to estimate the functional capacity of the kidney, we feel that the following are of practical use to the general practitioner the phenolsulphonephthalein test, the determination of the fixation of the specific gravity and of nocturnal polyuria (an elimination of over 400 c c between 6 p m and 6 a m being an indication of renal involvement), and the estimation of the blood content of uric acid, urea, creatinin, sugar and carbon dioxid combining power These tests are distinct contributions to medicine and have come to stay

TABLE 3—THE PROGNOSTIC VALUE OF THE CREATININ OF THE BLOOD IN NEPHRITIS

Case	Blood Creatinin, Mg to 100 C c	Phthalein, 2 Hr Output, per Cent	Termination
1 W F	33 3		Died
2 E M	28 6	0	Died
3 S H	22 2	0	Died
4 T D	20 5	2 to 3	Died
5 I D	20 0	0	Died
6 P J	20 0	0	Died
7 E L	18 9	0	Died
8 M M	17 8		Died
9 E C	16 7	0	Died
10 W O'C	16 6	Trace	Died
11 M K	14 7		Died
12 K K	14 7	0	Died
13 J H	14 3		Died
14 E P	12 7	0 to 1	Died
15 W W	12 5	0	Stationary
16 M O	11 1	0	Died
17 K	11 1	0 to 3	Died
18 J W	11 0	3 to 1	Died
19 J D	10 7	0 5 4 3-6	Died
20 O G	10 0	0	Died
21 S W	9 1	0	Died
22 V A	8 3	6 4 2	Died
23 J S	7 4		Died
24 W G	7 0		Died
25 E W	6 7	5	Died
26 A F	6 1	9	Died
27 M R	5 9	3	Died
28 J McC	5 6	2 7 10	Improved
29 V R	5 5		Died
30 M N	5 4	13-4	Stationary*
31 E E	5 3	10	Died
32 A D	5 2		Died
33 T K	4 9		Died
34 L P	4 8	0 10 31	Improved

* This patient has since died with a creatinin of 12 5 at time of death

The use of renal test meals gives us much valuable information, but because they necessitate the careful weighing of foodstuffs and the exact collection and analysis of specimens of urine, their use will be largely confined to institutions

The modern dietetic treatment of nephritis is based on the ability of the body to metabolize food stuffs and to eliminate their end-products, also on the permeability of the kidney to salt, water and nitrogen By means of the newer methods of urine and blood analysis, the effect of a given diet can at once be determined

It is obvious that in cases of salt, water or nitrogen retention the indications are to give either a salt-free limited fluid or low protein diet, as the case requires In cases of nephritis with high nitrogen retention, an almost exclusively carbohydrate diet, sugar in lemonade, arrowroot and cornstarch puddings are given for a few days

The amount of nitrogen retention in the blood serves as a most excellent guide in the giving of protein The use of a salt-free diet in cases of parenchymatous nephritis with edema and salt retention gives prompt results

CONCLUSIONS

An increase in the uric acid of the blood would appear to be of considerable value as an early diagnostic sign of incipient nephritis

The urea of the blood has been found very valuable as a guide to the treatment of moderately severe cases of nephritis, since any change in the patient's condition is quickly perceptible

As a prognostic test the blood creatinin has been found of very great service, over 5 mg to 100 c c having invariably proved fatal after the lapse of a comparatively short period of time During the terminal stages of the disease the concentration of the creatinin gradually rises, reaching 15 to 30 mg in most cases at death

The determination of the carbon dioxid combining power of the blood plasma according to the method of Van Slyke is a valuable index to the acidosis of nephritis, from the viewpoint of both diagnosis and treatment

In cases of advanced diabetes complicated with nephritis, the glycosuria or absence of glycosuria is a very poor guide to the hyperglycemia, since the nephritis has lowered the permeability of the kidney for sugar In these cases the estimation of the sugar of the urine should always be supplemented by the determination of the sugar of the blood

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[16] Myers and Bailey Jour Biol Chem, 1916, xxiv, 147 This paper describes the method of blood sugar estimation

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The Diagnosis of Venereal Diseases—*A recent report from* the laboratory of the New York City Health Department shows the work that is being done in the examination of specimens from cases of suspected venereal infection during the first quarter of 1916 During this period there were 13,419 complement fixation tests for syphilis, of which 3,730 were positive and 8,042 negative, 1,112 doubtful, and 535 specimens received were not examined There were 2,711 complement fixation tests made for gonorrhea, of which 248 were positive, 1,841 negative, 281 doubtful, and 341 received no examination The specimens examined microscopically for gonorrhea numbered 2,055, of which 321 were positive, 1,220 negative, 410 doubtful, and 104 specimens received were not examined The large number of negative reports indicates that physicians are taking advantage of the facilities the department offers in the way of diagnosis

A COMPARATIVE STUDY OF TESTS FOR RENAL FUNCTION

PHENOLSULPHONEPHTHALEIN, NONPROTEIN NITROGEN AND UREA NITROGEN OF THE BLOOD, AMBARD'S COEFFICIENT OF UREA EXCRETION, AND THE TEST MEAL FOR RENAL FUNCTION *

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The term "renal function" is generally accepted to mean eliminative power of the kidneys For clinical purposes, many workers in this field have regarded renal function as a unit, and the phrase "testing renal function as a whole" has become a by-word in medical phraseology While such a conception of the kidney's acting as an entity, all of its component physiologic factors diminishing or increasing their efficiency synchronously, may have the advantage of simplicity, it does not accord with the known facts It is a matter of routine observation that the diseased kidney may retain water, or salt, or urea, or phosphates, or sulphates, or any of the urinary constituents, and allow the remainder to pass freely We know that the glomeruli and the various subdivisions of the uriniferous tubules are structures with widely varying physiologic functions and are affected to an unequal degree by different toxic substances Extrarenal factors, such as secondary anemia, fever, cardiac failure, cystitis, prostatic disease, etc, are all mirrored in changes in the renal function which do not resemble one another in the least Therefore, to speak of "testing renal function as a whole" is to set a false standard Of the various tests for renal function, each has its own significance, and a greater insight will be obtained into the characteristics of kidney disease when physicians will no longer advocate one test blindly to the exclusion of all others, but will endeavor to interpret each one according to its significance It is from this point of view that the following studies are presented

TABLE 1—SCALE OF DEGREE OF IMPAIRMENT OF RENAL FUNCTION AS INDICATED BY THE TESTS EMPLOYED

Degree of Impairment of Renal Function		Phenol sulphonephthalein per Cent	Nonprotein N of the Blood Mg per 100 C c.	Urea N of the Blood Mg per 100 C c	Ambard s Coefficient of Urea Excretion	Test Meal for Renal Function					
						Night Urine		Variations in Sp G When the Highest Sp G is			
						C c	Sp G	18	17 15	14 and 13	12—
Normal	0	60+	30—	15—	0 090—	400—	18+	9+			
Slight	+	59-40	31-45	16-27	0 091 0 115	401 600	16 and 17	8 5	6+		
Moderate	++	39 25	46-65	28-44	0 116 0 220	601+	15—	4—	5 and 4	6+	
Marked	+++	24 11	66 90	45-64	0.221-0.350				3—	4 and 5	6+
Maximal	++++	10- 0	91+	65+	0 351+					3—	5—

INTERPRETATION OF THE INDIVIDUAL TESTS FOR RENAL FUNCTION

The phenolsulphonephthalein test is so widely used and its value so generally appreciated that it scarcely requires comment Rowntree[1] and his collaborators have maintained that after intramuscular injection, a urinary excretion of the drug of 60 per cent or more in two hours is normal and that "when the drug was continuously excreted in traces or not at all, a grave prognosis was to be given even without signs of uremia" Following these hints and the deductions from our own experience, the degree of impairment of renal function, as indicated by the various percentages excreted, have been set down in Table 1

It is impossible to be dogmatic in regard to what constitutes the upper normal level of nonprotein nitrogen and urea nitrogen of the blood Foster[2] found a maximum of 44 mg of nonprotein nitrogen per hundred c c of blood in supposedly normal individuals Tileston and Comfort[3] demonstrated 32 mg after a meal in a heavy meat eater Under ordinary circumstances, the maximum obtained by these authors was 25 mg, which agreed very closely with the results of Folin and Denis[4] It would seem that, unless there be a very high protein intake, 30 mg of nonprotein nitrogen per hundred c c of blood is a reasonable upper normal limit The usual hospital bill of fare certainly does not furnish such a diet Any value above 30 mg in the present series of cases has, therefore, been regarded as indicating some degree of renal insufficiency It is generally acknowledged that a retention of over 90 mg of nonprotein nitrogen per hundred c c of blood indicates a very great increase, and it has been so considered here (Table 1) The urea nitrogen has been plotted out on the scale of impairment of renal function with the nonprotein nitrogen as a guide, keeping in mind the fact that in normal individuals the urea nitrogen constitutes about 50 per cent of the total nonprotein nitrogen, while, with retention of the nitrogenous waste products, the percentage has a distinct tendency to increase (Table 1)

The upper normal limits of urea nitrogen have also been the subject of frequent experimentation Schwartz and McGill,[5] after reviewing the extensive literature on the subject, consider urea nitrogen values above 12 mg per hundred c c (0 25 gm urea per liter) as abnormal Myers, Fine and Lough[6] recently expressed the belief that 15 mg of urea nitrogen per 100 c c of blood was the upper normal limit McLean[7] demonstrated urea nitrogen as high as 23 mg per hundred c c (0 5 gm urea per liter) in normal individuals, but adds that within the limits of 14 to 23 mg urea nitrogen per hundred c c of blood (0 3 to 0 5 gm per liter) "a blood urea figure may be quite normal, or may occur with retention" It would seem,

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* From the Medical Clinic of the Johns Hopkins Hospital

* Read before the Section on Practice of Medicine at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Rowntree L. G and Fitz R Studies of Renal Function in Renal Cardiorenal and Cardiac Diseases Arch Int Med March 1913 p 258

[2] Foster N B Functional Tests of the Kidney in Uremia Arch Int Med October 1913 p 452

[3] Tileston Wilder and Comfort C W Jr The Total Nonprotein Nitrogen and the Urea of the Blood in Health and in Disease as Estimated by Folin s Method Arch Int. Med November 1914 p 620

[4] Folin and Denis Jour Biol Chem 1913 xiv 29

[5] Schwartz H and McGill C Blood Urea Determinations in Two Hundred and Eleven Cases Arch. Int Med January 1916 p. 42

[6] Myers V C Fine M S and Lough W G Significance of Uric Acid Urea and Creatinin of Blood in Nephritis Arch Int. Med April 1916 p 570

[7] McLean Jour Exper Med 1915 xxii 212

therefore, that the consensus of opinion points to determinations yielding a urea nitrogen figure above 15 *mg* in 100 c c of blood as revealing the possibility of nitrogen retention, which is at least worthy of closer investigation For the other tests discussed here, absolute values for the normal may be given For the nonprotein nitrogen and the urea-nitrogen of the blood, however, this is impossible because of the great influence dietary habits have on the level of these substances in the blood

Ambard's coefficient of urea excretion expresses numerically the relation which exists between the concentration of urea in the blood and the rate of excretion of urea in the urine It is calculated from the formula.

$$K = \frac{Ur}{\sqrt{D \times \frac{70}{P} \times \frac{\sqrt{C}}{\sqrt{25}}}}$$

In which K = The coefficient of urea excretion
Ur = Urea grams per liter of blood
D = Urea grams excreted in urine in twenty four hours
C = Urea grams per liter of urine
P = Body weight in kilograms
70 = Standard body weight in kilograms
25 = Standard concentration of urea grams per liter of urine

The formula is derived from Ambard's laws of urea excretion, concerning whose details the reader is referred elsewhere[8] The normal coefficient usually ranges from 0 06 to 0 09 When the values rise above 0 09, some impairment of the power of the kidney to excrete urea is indicated Inability of the kidney to eliminate urea in proportion to the concentration of the blood urea results in an increase in Ambard's coefficient In a normal individual it will remain within the limits mentioned, no matter what the height of blood urea, in cases with impaired renal function, however, the kidney does not answer the diuretic stimulus of the blood urea adequately, too little urea is put out, and the result is a rising coefficient, whether the urea in the blood be high or low The degree of impairment of renal function, as indicated by the various levels of Ambard's coefficient, are indicated in Table 1

The test meal for renal function consists of the two hourly collection of urinary specimens during the day, while the patient is on a full diet, and of a ten to twelve hour specimen at night No food or fluid is taken except at meal times The collection of the night specimen is begun three hours after the evening meal Under these circumstances, a normal test yields a maximum specific gravity of 1 018 or more, the specific gravity varies 9 points or more from the highest to the lowest, and the night urine is small in amount (400 c c or less) and of high specific gravity (1 018 or over) These criteria are the same as those originally demanded of a normal test, with the exception that a difference of 9 degrees between the highest and lowest observations has been called normal,[9] instead of 10 A lowering of the maximal specific gravity, a fixation of the specific gravity and a nocturnal polyuria are the signs indicating a diminished renal function Table 1 gives the various degrees of impairment as indicated by the test meal for renal function, as compared to the other tests The salt, nitrogen and other urinary constituents may be determined in these specimens, and valuable information may be obtained as to the ability of the body to excrete these substances However, the simple procedure of measuring the volume of the urine and determining the specific gravity yields sufficient data to give an adequate idea of renal function in many respects, and the quantitative chemical determinations may be resorted to when more detailed information is desired

In order to study the relation to one another of the evidences of impaired renal function obtained by these various tests, a somewhat arbitrary scale of four degrees of impairment — slight, moderate, marked and maximal — was determined on The exact figures which the majority of experienced observers consider as indicating normal function, and these various degrees of subnormal function, were selected, and are shown in Table 1 The findings in over 200 patients were grouped in accordance with this scale

A comparative table of this nature has heretofore not been seriously advocated It has very distinct advantages in that it makes the judgment of laboratory findings very precise However, it has its drawbacks in that it would tend to make the physician more mechanical in the interpretation of the facts laid before him and lead him astray, if the figures were not judged in connection with other clinical data It is our belief that a scale indicating impaired function, as this one does, is a distinct aid when used correctly In the first place, it calls attention without fail to impaired function whenever it is present, and it brings before the observer a distinct conception of the degree of involvement In the second place, it enables the physician in charge to judge which functions are impaired and to what degree Further study may show that this particular tabulation is erroneous in some respects However, it is hoped that it, or a similar table, may be used as a standard by which to judge of renal function Other tests for changes in diseases of the kidney might be plotted in on the same scale It should be clear that no functional test can be used as direct evidence for the diagnosis of the anatomic or etiologic type of disease present, or even as a therapeutic guide, but only indirectly as an assistance to the experienced in arriving at a final judgment A low hemoglobin percentage, for instance, gives an exact measure of the degree of anemia present, but tells nothing of its cause or of the exact treatment indicated

TECHNIC EMPLOYED

The phenolsulphonephthalein test of Rowntree and Geraghty was performed according to the method outlined by these authors[10] The procedure of Folin and Denis[11] was employed to obtain the figures for nonprotein nitrogen of the blood

The method of Marshall[12] was used for the quantitative determination of urea nitrogen in the blood

In ascertaining the figures for Ambard's coefficient of urea excretion, the same method for blood urea was employed, the urea of the urine was estimated according to Marshall,[13] the coefficient itself was calculated according to the original formula of Ambard[14] The test meal for renal function followed the technic as previously laid down by one of us The name of this test has been changed from "nephritic test meal" to "test meal for renal function," as suggested by Dr L F Barker, since it has been employed in many other conditions besides nephritis

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[8] Ambard Physiologie normale et pathologique des reins, Paris, 1914 McLean, F Jour Exper Med 1915 xxii 212

[9] Mosenthal, H O Renal Function as Measured by the Elimination of Fluids, Salt and Nitrogen, and the Specific Gravity of the Urine, Arch Int Med, November, 1915, p 733

[10] Rowntree, L G, and Geraghty, J T Jour Pharmacol and Exper Therap, 1909, i, 579, The Phthalein Test, Arch Int Med March, 1912, p, 284

[11] Folin and Denis Jour Biol Chem, 1913, xiv, 29

[12] Marshall, E K Jour Biol Chem, 1913, xiv, 283

[13] Marshall, E K Jour Biol Chem, 1913 xv, 487

[14] Ambard Compt rend Soc de biol, 1910, lxix, 411, 506

GROUPING OF THE CASES STUDIED

Observations on over 200 patients are recorded in this series The results obtained in cases of anemia, whether primary or secondary, are considered separately at the close of the article This is done because anemia presents a condition whose cause for diminished activity of the kidneys can be definitely associated with abnormalities of the blood, and which furnishes one of the most clear-cut examples of dissociated involvement of the various renal functions That is, the ability to secrete a concentrated urine is remarkably diminished, while the other tests show only slight if any depression of renal activity There are other diseases, such as diabetes insipidus, which show similar characteristics The interpretation of renal function in these as well as other abnormal conditions is quite impossible at present

The remainder of the material has been grouped in various ways, intended to bring out certain points which study of the material has yielded Because of lack of space, it is impossible to publish the tables in full

GENERAL COMPARISON OF ALL THE TESTS EMPLOYED

A glance at Table 2 establishes the following facts

1 The nonprotein nitrogen and urea nitrogen indicate a slighter degree of involvement of renal function than the other tests

TABLE 2—DEGREE OF INVOLVEMENT BY THE TESTS AS COMPARED TO PHENOLSULPHONEPHTHALEIN ACCORDING TO THE SCALE OF TABLE 1*

Degrees Variation from Phthalein	Nonprotein Nitrogen	Urea Nitrogen	Ambard's Coefficient	Test Meal
++	1 per cent	1 per cent	6 per cent	15 per cent
+	5 per cent	10 per cent	21 per cent	35 per cent
Same	48 per cent.	45 per cent	47 per cent	34 per cent
—	32 per cent	31 per cent	23 per cent	14 per cent
— —	8 per cent	10 per cent	2 per cent	2 per cent
— — —	3 per cent	3 per cent.	1 per cent	
— — — —	3 per cent.			
Total cases	85	162	156	136

* In this table + signifies 1 degree greater involvement than that shown by phenolsulphonephthalein and — 1 degree less All the cases observed except those with severe anemia are grouped together in this table

2 Phenolsulphonephthalein and Ambard's coefficient tend to show an equal degree of impairment of renal function

3 The test meal for renal function demonstrates a greater degree of depressed function than the other tests

The same relations hold true for each type of case when this whole group is subdivided into the following classes hypertensive cardiorenal disease, passive congestion, nephritis without hypertension, and miscellaneous, which includes cases of prostatic hypertrophy, cystitis, polycystic kidney, etc The significance of these findings will be discussed in greater detail in the remainder of the article

1 *The Nonprotein Nitrogen and Urea Nitrogen of the Blood, and Ambard's Coefficient*—These three tests all determine the ability of the kidney to excrete nitrogenous waste products Ambard's coefficient may indicate such an impairment of function even when the nitrogenous products in the blood are within normal limits[15] In the present series (Table 3) this is readily observed It also shows how slight increases in the blood urea and total nonprotein nitrogen figures may be revealed in their true light by Ambard's coefficient, many of them evidently being due to renal insufficiency, while others are not

In all the cases quoted in this article, the basis of classification has invariably been the highest value for nonprotein nitrogen or urea nitrogen obtained By these means, the dietetic influence has been in great part obviated It has been demonstrated what a great part diet plays in influencing the level of nitrogenous waste products in the blood[16] Our experience has led us to the same conclusion, as may be noted in Table 4

TABLE 3—COMPARISON BETWEEN THE DEGREE OF INVOLVEMENT OF RENAL FUNCTION, AS SHOWN BY THE NITROGENOUS PRODUCTS IN THE BLOOD, AND AMBARD'S COEFFICIENT

Degree of Impairment as Measured by Nonprotein Nitrogen and Urea Nitrogen	Total Number of Cases	Percentage of Cases Exhibiting the Given Degree of Impairment of Renal Function, as Indicated by Ambard's Coefficient				
		0	+	++	+++	++++
0	56	57	27	16		
+	64	17	28	50	5	
++	21		19	43	33	5
+++	9			11	56	33
++++	15				7	93

One of these cases is particularly noteworthy The reduction of 145 mg of nonprotein nitrogen to 32 mg by dietary means is one of the most marked results of this kind thus far recorded The partial data of this case are given in the accompanying chart

The above and one other extrarenal factor must be borne in mind when blood nitrogen values are considered This is the effect of an increased protein catabolism It commonly occurs in the terminal stages of some forms of nephritis That this condition in Bright's disease is not necessarily a rapidly fatal one is seen in this patient, who lived several months after these observations were made (see chart) Such a process may increase the blood nitrogen figures materially without signifying altered renal function as shown by the phenolsulphonephthalein or nitrogen excretion It should, however, always be considered a serious omen, as may be gathered from those cases in whom we have observed it, all of whom have suffered a fatal issue either immediately or within a few months Studies on these points are in progress at our clinic and will be reported in greater detail subsequently

TABLE 4—THE EFFECT OF A LOW PROTEIN DIET ON THE LEVEL OF THE NONPROTEIN AND UREA NITROGEN OF THE BLOOD

Before Low Protein Diet		After Low Protein Diet		Diagnosis
Nonprotein N Mg per 100 C c	Urea N Mg per 100 C c	Nonprotein N Mg per 100 C c	Urea N Mg per 100 C c	
26	17	16	7	Sec Contr Kid
	26		5	Chr Diff Neph
36		30		Chr Diff Neph
47		30		Chr Diff Neph
97	61	22	15	Sec Contr Kid
145	126	32	23	Sec Contr Kid

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[15] Ambard (Footnote 14) McLean F C Clinical Determination of Renal Function by an Index of Urea Excretion, The Journal A M A, Feb 5 1916 p 415

[16] Folin, Otto Denis W, and Seymour Malcolm The Nonprotein Nitrogenous Constituents of the Blood in Chronic Vascular Nephritis (Arteriosclerosis) as Influenced by the Level of Protein Metabolism, Arch Int Med, February 1914 p 224 Frothingham Channing Jr and Smillie W G A Study of Different Nitrogenous Diets in Chronic Nephritis Arch Int Med February, 1915 p 204

The chart shows how in the first two weeks of observation, in spite of a negative nitrogen balance, the nonprotein nitrogen of the blood varied but slightly, and how it subsequently dropped to a lower level Considering the fact that this patient was taking a low protein diet with a large caloric value in starches and fats, it is believed that these figures indicate a protein destruction This is confirmed by the fact that during the third week the drop in the blood values was much more rapid than during the second period, although the nitrogen loss was somewhat less During this time, the protein destruction had evidently subsided (*The drop to 32 mg of nonprotein nitrogen recorded in Table 4 occurred at a later period not included in the chart*)

TABLE 5—RAPID CHANGES IN THE LEVEL OF THE NONPROTEIN NITROGEN OF THE BLOOD, DUE TO KIDNEY INSUFFICIENCY ALONE OR COMBINED WITH AN INCREASED PROTEIN CATABOLISM

Nonprotein Nitrogen of the Blood, Mg per 100 C c		Days Between Observations	Diagnosis
First Observation	Second Observation		
35	426	23	Acute exacerbations of chronic nephritis protein destruction
49	111	12	Chronic nephritis, bronchopneumonia, protein destruction
96	192	11	Chronic nephritis, uremia, protein destruction
127	304	8	Chronic nephritis, uremia, protein destruction
178	292	18	Chronic nephritis, uremia, protein destruction
63	222	54	Acute exacerbation of chronic nephritis retention only
81	184	5	Mercury poisoning, anuria retention only

The last eight days of observation (see chart) indicate a marked retention of nitrogen without a corresponding increase in the urea nitrogen of the blood This nitrogen was doubtlessly assimilated by the tissues This series of events demonstrates how a nitrogen balance between the intake and the output in the feces and urine are not as valuable tests of the kidney's ability to handle a given amount of protein food as the blood determinations and Ambard's constant[17]

TABLE 6—COMPARISON OF DEGREE OF IMPAIRMENT OF FUNCTION IN SEVENTY-THREE CASES OF ALL CLASSES EXCEPT ANEMIA IN WHICH ALL THE TESTS WERE CARRIED OUT, EXPRESSED IN PERCENTAGE OF THE TOTAL FIGURES

Degree of Renal Involvement According to Scale	Phenolsulphonephthalein	Urea N of Blood	Ambard's Constant	Test Meal
0	18 per cent	40 per cent	32 per cent	10 per cent
+	45 per cent	35 per cent	22 per cent	27 per cent
++	12 per cent	14 per cent	25 per cent	27 per cent
+++	11 per cent	4 per cent	12 per cent	7 per cent
++++	14 per cent	7 per cent	9 per cent	29 per cent

Very rapid increments may occur in the nonprotein nitrogenous constituents of the blood (Table 5) caused either by kidney insufficiency alone or combined with abnormal protein catabolism Such sudden changes may invalidate many of the attempts to formulate averages for blood figures in any given type of nephritis, they also explain the low nitrogen values found in some instances a few days before death in uremia[2]

THE EARLY DIAGNOSIS OF IMPAIRED RENAL FUNCTION

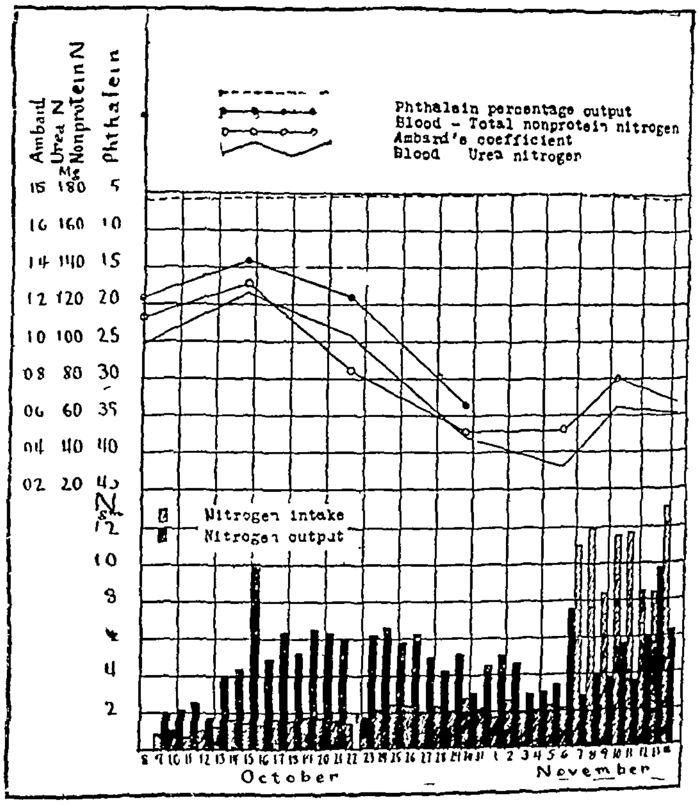
It has been shown (Table 2) that the test meal for renal function demonstrates a greater degree of depressed function than the other tests This does not necessarily imply that it appears as the first sign of impairment A better answer to this question can be obtained if only those cases (excepting the anemias) are compared in whom all tests were carried out (Table 6)

Table 6 shows that

1 The tests in order of their positive appearance are the test meal, phenolsulphonephthalein, Ambard's constant, urea nitrogen of the blood[18]

2 A maximal involvement is most frequently seen in the test meal, less frequently in the phenolsulphonephthalein test and least often in Ambard's coefficient

The second consideration will be discussed under prognosis The first point, that the test meal gives the earliest positive indication of renal damage, confirms the observation made in Table 2 This fact admits of an explanation, which indicates very beautifully how in many cases the negative finding in the phenolsulphonephthalein and Ambard tests is more apparent than real As others[19] have found, the present series contained some cases of chronic diffuse nephritis with an excessive phenolsulphonephthalein output (Table 7), besides these there were many instances of hypertensive cardiovascular disease exhibiting a similar phenomenon All these patients also showed a very rapid elimination of urea, so that the figures for Ambard's constant were normal or subnormal[20] These cases of overactivity in mild kid-



Data from a case of secondary contracted kidney, indicating the processes of protein destruction and assimilation and their relation to tests of renal function ney lesions have been referred by Schlayer and his associates[21] to the excessive response evoked in an intact organ by the irritation resulting from inflammatory processes. As the lesions advance, the renal parenchyma becomes more severely damaged and exhibits a subnormal activity to the pathologic stimulus. The stage of overactivity is characterized by phenolsulphonephthalein excretions and Ambard's coefficients, which appear to surpass even the normal criteria as signs of renal insufficiency. However, it has a different effect on the test meal, since the kidney irritability expresses itself in an excess of fluid excretion which has the tendency to result in a nocturnal polyuria, and a fixation as well as a lowering of the specific gravity. It is for this reason that the test meal is so frequently the earliest sign of an involvement of renal function.

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[17] Mosenthal, H O, and Richards, A E Interpretation of Positive Nitrogen Balance in Nephritis, Arch Int Med, February, 1916, p 329

[18] Christian and his associates have also found the test meal to be the most delicate indicator of renal function Christian, H A Am Jour Med Sc, 1916, cli, 625

[19] Baetjer, W A Superpermeability in Nephritis, Arch Int. Med, June, 1913, p 593 Pepper and Austin Am Jour Med Sc, 1913, cxl, 254 Sellards Bull Johns Hopkins Hosp, 1912, xxiii, 298

[20] These findings as well as similar ones in fever and hyperthyroidism will be discussed in full in a future paper by D S Lewis

PROGNOSIS

The relationship between tests of renal function and prognosis in nephritis has been found to be very uncertain. The extrarenal factors, cerebral hemorrhage, myocardial insufficiency, intercurrent infections, etc., have caused a fatal termination so frequently as to put a greater emphasis on the physician's clinical judgment than on the interpretation of tests for renal function alone. In certain patients, degrees of impaired kidney activity are found which are ordinarily considered incompatible with life. These as well as others who exhibit uremia with apparently fair functional kidney processes go far to show that uremia and renal lesions are not entirely dependent one on the other.

TABLE 7.—CASES OF CHRONIC DIFFUSE NEPHRITIS AND HYPERTENSIVE CARDIOVASCULAR DISEASE SHOWING A NORMAL OR SUPERNORMAL RESPONSE TO PHENOLSULPHONEPHTHALEIN AND AMBARD'S COEFFICIENT WHILE THE TEST MEAL SHOWS SOME IMPAIRMENT OF FUNCTION

Diagnosis	Phthalein, per Cent	Urea N of the Blood Mg. per 100 C.c.	Ambard's Constant	Degree of Impairment Indicated by the Test Meal
Chronic diffuse nephritis	71	18	0.064	+
Chronic diffuse nephritis	78	11	0.054	+
Chronic diffuse nephritis	80	12	0.070	+
Chronic diffuse nephritis	70	8	0.068	+
Hypertensive cardiovas. disease	76	8	0.048	0
Hypertensive cardiovas. disease	63	12	0.050	++
Hypertensive cardiovas. disease	70	9	0.050	+
Hypertensive cardiovas. disease	85	9	0.059	0
Hypertensive cardiovas. disease	67	16	0.077	++
Hypertensive cardiovas. disease	81	15	0.070	+
Hypertensive cardiovas. disease	65			++
Hypertensive cardiovas. disease	75			+
Hypertensive cardiovas. disease	65			+
Hypertensive cardiovas. disease	66			++
Hypertensive cardiovas. disease	67			+
Hypertensive cardiovas. disease	65			++

The most striking example of this kind in our series is H. S., diagnosis, polycystic kidneys. In December, 1914, the total nonprotein nitrogen of the blood was 118 mg., the excretion of phenolsulphonephthalein yielded only a faint trace in two hours (Ambard's coefficient, if determined, would undoubtedly have been very high), and the test meal showed a maximal impairment of function (maximal specific gravity, 1.011, variation from the highest to the lowest specific gravity, 1 degree, a night urine of 1,290 c.c.). Fifteen months later (March, 1916), the phenolsulphonephthalein and test meal were unchanged, the blood nitrogen was 112 mg., and Ambard's constant 0.67. At present one and one-half years after tests which indicated an extreme impairment of renal function, he is working at his office every day.

A high nonprotein nitrogen (above 90 mg.) or a high urea nitrogen (of 65 mg. or higher) has been found to be the most reliable prognostic sign. Of eighteen such patients, fourteen died in the hospital or shortly after leaving it; of the other four patients, one is still in the hospital in a precarious condition, one is the case of polycystic kidney referred to above, one is a case of mercuric chlorid poisoning with recovery, and the last is a case of secondary contracted kidney who has followed therapeutic directions so closely that he may almost be said to have outlived his day. It is clear to the physician coming in contact with these cases of nitrogenous retention that a sharp line can be drawn between those suffering with increased protein catabolism and those who are not. An example of this kind has been given in detail. This factor when present almost invariably foreshadows an unfavorable prognosis; a retention, on the other hand, not coupled with an abnormal degree of protein destruction, may do very well (as the case of polycystic kidney mentioned previously). In the earlier stages of nephritis, the nitrogen of the blood is very likely to lag behind the other tests (Tables 2 and 6) and it has been shown how Ambard's coefficient is more reliable under these circumstances as a test of renal function.

In nephritis, whether of the chronic diffuse or of primary contracted type, an Ambard's coefficient of 0.20 or higher has usually been associated with a fatal issue within a few months at the most. Of 87 patients with an index less than 0.2, 63 were traced and 15 died, 7 of uremia and 3 of cerebral hemorrhage. Of 36 patients with an index above 0.2, 30 were traced and 24 died, 12 of uremia, 9 of myocardial insufficiency, and 3 of cerebral hemorrhage. It is only to be expected that the patients with a higher Ambard's coefficient should show a more unfavorable prognosis. However, here, as in the case of other functional tests, an infallible guide to prognosis is not demonstrated. The test meal usually reaches a point of maximal intensity some time before the other tests. Uremia, or death from some other cause, may occur at these periods, and thus lend an aspect of greater prognostic importance to the test meal than it actually possesses. It may be used as a valuable guide to prognosis in conjunction with the other procedures, but an opinion of maximal impairment of function should not be given without them.

The phenolsulphonephthalein test in this series has yielded results which have not varied from those reported previously.[22] An output of less than 10 per cent. has usually, but not invariably, warranted an utterly bad prognosis; occasional instances of death from uremia have taken place with an excretion of the drug in the neighborhood of 50 per cent.

EXAMPLES OF "DISSOCIATED" RENAL FUNCTION

Up to the present, the most constant examples of this kind have been found among the anemias. A few of the results are given in Table 8. Case 1 typifies the test meal result in a case of severe anemia: a marked fixation of specific gravity at a low level, and a nocturnal polyuria, indicating a maximal degree of functional involvement. After transfusion, the specific gravity rises, but is still markedly fixed. As the blood returns to normal, the test meal tends to resume a normal curve (Case 2). Under ordinary circumstances the low fixed specific gravity is characteristic of anemia with a hemoglobin of less than 40 per cent If the anemia persists over a long period, such results are obtained even when the hemoglobin assumes a higher level This fact, coupled with the progressive diminution of phenolsulphonephthalein in Case 4, would indicate that anemia in itself may have a harmful effect on the kidney[23] Cases 3 and 4 are examples of complete dissociation of function, the blood urea, Ambard's coefficient and phenolsulphonephthalein indicating only a slight or no impairment of function, the test meal a maximal one, whereas, in Cases 5, 6 and 7, with higher percentages of hemoglobin, the test meal reveals a slight or moderate involvement, as compared to the normal or slightly impaired state of the other tests

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[21] For a summary of these views see Schlayer: Beihefte z. med. Klin., 1912, viii, 211.

[22] Thayer and Snowden: Am. Jour. Med. Sc., 1914, cxlviii, 781.

The causes for extreme variance between urea nitrogen and nonprotein nitrogen of the blood and the other renal functional tests have been discussed These tests are comparatively simple in their interpretation, and illustrate what great advances can be made when other problems can be attacked from a rational pathologic physiologic basis

Occasionally cases are found in which there is extreme divergence of some of the tests, as in the following In a woman, aged 37, the phenolsulphonephthalein excretion was 45 per cent Ambard's coefficient 0 142, the nonprotein nitrogen of the blood 17, the urea nitrogen 9, and the test meal revealed a maximal involvement, as indicated by a low, fixed specific gravity On first sight, this might be supposed to be a case of diabetes insipidus, as indicated by the low specific gravity and very moderate polyuria However, such patients do not have a diminished phenolsulphonephthalein excretion,[24] and closer investigation of the nitrogen excretion, as suggested by a moderately impaired Ambard's coefficient, revealed the fact that the maximal involvement indicated by the test meal in its low fixed specific gravity was present because this individual did not have the power to concentrate nitrogen above 0 2 per cent The salt output was much better than this

TABLE 8—THE RESULTS OF TESTS FOR RENAL FUNCTION IN PRIMARY AND SECONDARY ANEMIAS

Case	Phthalein per Cent	Ambard's Constant	Urea Nitrogen Blood, Mg per 100 C c	Test Meal for Renal Function								Hb	Red Blood Cells	Diagnosis
				Night Urine		Sp G in the Two Hourly Day Specimens								
				C c	Sp G									
1				430	12		11	12	12	11	12	25	1,088 000	Pernicious anemia
				490	18	16	17	18	17	16	18	55	2 444 000	After transfusion
2				520	23	17	21	25	20	22	13	95	4 028,000	Pernicious anemia, splenectomy, repeated transfusions
3	55	0 10	13	990	09	09	08	09	10	10	10	52	2 816 000	Secondary anemia for longer than 9 months
4	73			1,250	10	14	10	10	10	11	11	39	2 464 000	Secondary anemia for long period
	42	0 04	6	395	10	09	10	09	10	09	10	50	2 320 000	One year later
5	54	0 09	14	415	14		22	25	15	19	12	50	2,000 000	Primary anemia
6	54	0 06	14	455	21	16	16	17	18	18	18	48	1,960 000	Primary anemia
7	46	0 06	10	740	14	22	16	18	16	15	11	40	1,880,000	Secondary anemia

Such cases illustrate how each test has its own significance, which, if thoroughly appreciated, may lead to marked improvement in therapeusis

SUMMARY

1 A scale of impairment of renal function is proposed, according to which the tests may be measured Such a graduation calls to the attention of the clinician the relative degree of involvement as shown by different procedures Inasmuch as each of them has a significance apart from the others, comparison according to this method is an extremely valuable aid in the treatment and prognosis of diseases of the kidney

2 The level of the nonprotein and urea nitrogen of the blood must be estimated largely as the resultant of three factors—kidney efficiency, diet and protein destruction In judging of prognosis, when these substances are high in the blood of nephritics, due regard must be given as to whether their accumulation is brought about by retention alone or through retention coupled with protein destruction The former offers a comparatively better prognosis than the latter

3 The coefficient of Ambard is a better method of determining the ability of the kidney to excrete urea than the level of this substance in the blood

4 The progress of renal disease is probably followed most minutely by means of the phenolsulphonephthalein excretion and Ambard's coefficient, as these tests furnish figures in which even small variations are of significance

5 The test meal for renal function, of the tests employed, gives the earliest indication of diminished kidney efficiency It likewise reaches the maximum degree of impairment before the others

6 Each test for renal function covers only a limited range of the kidney's activities It is, therefore, a mistake to speak of any test as measuring renal function as a whole The aim should be to develop a proper interpretation of the old tests and easily applied new ones, in order to obtain a true guide to the treatment of diseases of the kidney

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS FOSTER, CHACE AND MYERS, AND MOSENTHAL AND LEWIS

Dr Henry Asbury Christian, Boston Dr Foster has given us a very valuable analysis of the various types of uremia, one which I am sure will be helpful not only in a better understanding of the condition but also one that will give us a better idea of how to treat nephritic cases when confronted by the picture of uremia belonging to one of these various types Dr Chace has dealt chiefly with one method of testing renal function and his results are of decided value in comparison with other methods Dr Mosenthal has made comparisons of several methods and has drawn certain conclusions This fact stands out in the symposium, that from the various methods we may get various results and we meet with cases in which we get individual variations from anticipated results though usually results from different methods agree very well The important thing is that unless we apply more than one method we will miss evidences of disturbed renal function in some cases The results of the studies we have conducted at the Peter Bent Brigham Hospital in Boston are analogous to those of Dr Mosenthal in regard to the relative results of the several tests Like Dr Mosenthal, we have come to think that Ambard's coefficient is of more value than the urea nitrogen in the blood McLean's method of expressing the relationship between the urea in the blood and the urea in the urine is better in our opinion than the Ambard method We have in our work come to the conclusion that in the determination of the total nonprotein nitrogen no more light is thrown on renal function than by the determination of the urea nitrogen in the blood This latter determination is part of the data required for the McLean index or Ambard coefficient and so adds no extra work In addition, the dietary test as outlined by Dr Mosenthal is of value particularly in the early cases of nephritis in that it will show disturbances at a period before the phthalein, urea nitrogen or other tests will The results obtained with the dietary test are of great value but chiefly in the early stages of nephritis In the later stages, however, it gives little additional information to that obtained from the phthalein test, the blood urea and the Ambard or McLean index This is due to the fact that it shows its maximum effect relatively early in the nephritis and in the late stages changes but little with progress of the lesion

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[23] Cases of anemia with serious functional disturbances of the kidney have been reported by Tileston, W, and Comfort, C W, Jr (Footnote 3)

[24] Fitz, R A Case of Diabetes Insipidus, Arch Int Med, November 1914, p 706

Dr L F Barker, Baltimore I should like to emphasize two points First, the kidney behaves differently as regards different substances If we wish to know in a broad way what the renal function is, we must test the power of the kidneys to excrete several different substances This requires much work For instance, the chlorids may be retained by kidneys that are able to excrete nitrogen well, and *vice versa* Second, the kidneys begin to eliminate certain substances as soon as they appear in the blood, whereas other substances must reach a certain degree of concentration in the blood before the kidneys begin to eliminate them Thus urea is a substance that is at once given out On the other hand, the chlorids must reach a certain degree of concentration in the blood before the kidneys start excreting chlorids—the so-called threshold of chlorin excretion The chlorids may fail to appear in the urine in pneumonia, the reason is that the blood-concentration in chlorids falls below the threshold of excretion We must, I think, pay more attention to such excretion-thresholds

What may the general practitioner use as tests of renal function? Of the several tests referred to there are two that are especially advantageous First, the renal test diet as modified by Mosenthal is simple and easy to apply The urine is collected every two hours Even if we determine only the quantity and the specific gravity of each specimen thus obtained we can draw valuable inferences regarding the ability of the kidneys to excrete a concentrated urine and regarding the "fixation of the specific gravity" or a so-called hyposthenuria Second, the phenolsulphonephthalein test is a valuable and practical test, especially for the surgeon who desires to know whether the renal function is good enough to permit him to perform an operation If the general practitioner would apply these two tests in special cases he would reap the many benefits derivable from the studies of renal function as far as they have yet gone

Dr Albion Walter Hewlett, Ann Arbor, Mich The tests that have been discussed give the same sort of information concerning the function of the kidney and the question arises as to which is the most easily performed and is at the same time reliable As between the blood urea and phthalein tests we have found the former a more accurate indication of serious renal damage The phthalein test, however, is the more easily performed and is, as a rule, sufficiently accurate The information given by such tests is of great value in prognosis and similar information cannot be obtained by the usual urinary examinations Dr Foster has pointed out that in one type of uremia the symptoms are due to a retention of urinary products in the body In our experience this is the commoner type of uremia In order to determine what role, if any, urea itself plays in producing the asthenic symptoms present in this toxemia, Gilbert, Wickett and myself took large quantities of urea by mouth and raised the urea in our bloods to 200 mg per 100 c.c. or over When the urea in the blood exceeded 160 mg asthenic symptoms occurred There was no rise of blood pressure and no loss of appetite From these experiments we are inclined to believe that urea itself is responsible for some of the manifestations of this type of uremia

Dr H J Lehnhoff, Lincoln, Neb It appears to me that the result of this experimentation depends on a certain number of variables of the majority of which we have no knowledge and of even more of which we have absolutely no control Some of these known variables might be illustrated by chronic infections, slight temperature elevation, conditions of the blood, abnormalities of the internal secretions, etc These variables have an influence and I do not believe we should look on these abnormalities as being absolutely results of kidney pathology alone

Dr Nellis B Foster, New York I did not refer to Dr Hewlett's experiment on himself as I believed he would speak of it If he had sought my advice regarding doing it on himself, I would have told him not to do it, although it is an experiment I have wanted to see done According to my notion, such amounts of urea would be dangerous should the kidney function be imperfect, but I rather doubt that urea is the sole factor productive of symptoms with the asthenic type of uremia

Dr A F Chace, New York General practitioners wish to know those tests which are of practical value and those which are of academic interest The examination of the blood requires only from 1 to 10 c c of blood and is comparatively simple The advantages of these tests are that the physician does not have to pay attention to prepared diets and to specimens of urine carefully collected I wish to recommend as practical tests the estimation of the uric acid, creatinin, sugar and the CO_2 combining of the blood

Dr Herman O Mosenthal, Baltimore A very important point is the relation of extra-renal factors to kidney function When we speak of renal function we mean the eliminative power of the kidney This is dependent not only on the condition of the kidney itself, but likewise on the almost innumerable other factors which may influence the activity of this organ, such as the food intake, the metabolic activities of the body, the composition of the blood, the blood pressure, the rate of blood flow, fever, etc It is necessary to recognize the fact that renal function is frequently as dependent on the changes which occur in the heart, the gastro-intestinal tract, the blood, etc, as it is on changes in the kidney itself It may be the appreciation of this fact that has led clinicians to apply themselves to the study of function rather than to the pathologic anatomy of kidney lesions In taking up studies of this kind, we are working with a twofold end in view first, to obtain a greater insight into the patient's condition, and thereby to aid therapeusis, and, second, to increase our knowledge of the physiologic and pathologic-physiologic activities of the kidney Contributions of great value have been made by the clinician to our knowledge of the functions of the thyroid, as well as other organs, by these means, and it is hoped that the same may be accomplished for the kidneys

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Metchnikoff and Buttermilk—The lamented death of Professor Metchnikoff recalls the furore for the lactic acid bacillus which one of his papers created Macaulay, in a famous passage, says "We know no spectacle so ridiculous as the British public in one of its periodical fits of morality " The same public in a fit of new-found panaceal therapy affords a spectacle only slightly less ridiculous Metchnikoff was the innocent cause of one of these For several months one heard of nothing but the Bulgarian bacillus The bacillus shared with Mr Lloyd George's budget the honor of monopolizing the conversation at the dinner tables of the great He dominated Belgravia, frolicked in Fulham, and bestrode Birmingham and the whole of the British Isles Whether he did any good to any one except the chemists and the purveyors of milk there is some reason to doubt That he himself, or a colorable imitation of him, which was put on the market by the unscrupulous, did a great deal of harm is quite certain But the harm done was mostly to the self-prescribers or to those introspective idiots who allow themselves to be treated by their lady friends It was therefore not great—*Medical Press and Circular*

THE RÔLE OF THE ANTEPOSED UTERUS IN THE CAUSATION OF BACKACHE AND PELVIC SYMPTOMS *

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The assumption of the upright position by woman has proved a doubtful experiment as far as her pelvic organs are concerned. They have been unable to satisfactorily accommodate themselves to this attitude and the fight for their correction is still on. The discussion of the correct position of the womb has long ago ceased to be confined to the medical profession and has become a topic of live conversation among the female laity. Every ache and pain from eye strain to sciatica will be promptly accounted for in a woman's mind, once it is ever suggested to her that her "womb is tipped." What more distressing condition can a woman imagine than that her most precious organ is lying askew? How surely, once the suggestion is received, will the woman hurry to the physician for confirmation or denial of the condition! On the answer she receives will depend, in a large measure, the health, mental and physical, of the patient.

Recognizing the fact that woman has assumed the upright position and that in consequence the uterus, under all conditions, is but poorly supported mechanically, the significance of the various positions in which we find the organ must be studied with care, and treatment directed to the relief of only those symptoms which can be proved to be caused by the position found.

Generally speaking, one position only of the uterus is recognized as a cause of low backache and pelvic drag, and that is the retroposition of the fundus. If the fundus is found to be forward in the pelvis the cause for the backache and pelvic symptoms is sought for in the sacro-iliac joints, in back strain and in the constipated bowel. Hundreds of patients are seen in whom the fundus is in third degree retroposition and yet they have no backache whatever, and an equal number may be found in whom the fundus is forward and yet they have all the clinical symptoms of a retroposition. It was this seeming paradox which led me to undertake the studies which form the basis of this paper.

The chief supports of the uterus are those of its cervical portion, namely, the lower part of the broad ligaments and the pelvic floor. If the round ligaments and the upper parts of the broad ligaments are severed, there will result but little if any change in the position of the uterus as a whole. There may easily result rotation of the fundus with the cervical portion acting as an axis, but there will be no resulting descent. As it is the descent, and descent alone, which causes the drag which produces symptoms, the position of the fundus, whether forward or back, may be disregarded as a factor in the production of these symptoms. We must focus our attention on the amount of descent, the relative position of the uterus as a whole, if we would determine whether that organ is the cause of the drag or not.

The frequent failure of a suspension of a retroposed fundus to relieve patients of their symptoms of low backache, and the persistence of symptoms of backache and pelvic drag after strapping the back, applying corsets and belts, etc., in patients in whom the fundus remains forward, led me to conduct a series of experiments and investigations to try to remedy these failures.

The first of these investigations were carried out in my office and clinic. In every patient examined who complains of backache and lack of support, a careful note is made as to the position of the uterus as a whole in the pelvis. First I note the relative position of the cervix to the symphysis pubis and the ischial tuberosities, paying no attention whatever to the forward or backward position of the fundus. The extent of the anteroposterior movements is noted, in other words, the amount of posterior descent of the cervix. In speaking of descent I mean only the posterior descent toward the coccyx and in no way the rotation with descent toward the outlet, a condition which forms an entirely different class of cases. The stability of the lower part of the broad ligaments, the paracervical tissues and the uterosacral ligaments are tested by grasping the uterus between the examining hands and moving it as far as possible up behind the symphysis and backward toward the coccyx. By this maneuver I can frequently reproduce temporarily the ache and drag of which the patient complains. This is always a desirable feature in any diagnostic work in which pain is a symptom.

From the examination of a large series of cases the amount of posterior descent is found to vary considerably. I then place vaginal tampons in such a position that the uterus as a whole, and not simply the fundus, is forced well forward, up back of the symphysis, in the position where a high suspension will hold it. These tampons are allowed to remain for forty-eight hours, during which time the patient is instructed to keep about her normal activities, walking, dancing, or whatever she pleases. At the end of forty-eight hours the patient reports to me the result of this experiment. If the backache and drag have been relieved, I feel sure that a suspension will give permanent relief. If the backache is not relieved, then some other cause for the same must be sought, a cause outside of the position of the uterus in the pelvis. By this means, many cases of sacro-iliac pain and back strain are clearly differentiated from low pain due to uterine descent.

As a further means of investigation, undertaken with the purpose of finding out the real cause of the pain due to uterine descent, careful exploration is made in the case of every patient operated on. As soon as the abdomen is opened, the intestines are gently pushed up out of the pelvis and a careful inspection of all pelvic structures made. Whether the fundus is turned forward or backward, the uterus as a whole will be found to be far down in the pelvis, the fundus sometimes lying below the pubic arch, although there has been no descent toward the outlet. The most striking picture, however, is that furnished by the fulness and congestion of the ovarian veins, in case the uterus descends in the manner described, the chief pull coming on the infundibulopelvic ligament, which is composed of nothing more than the two layers of sensitive parietal peritoneum enclosing the ovarian vessels. This so-called ligament stretches around the sides of the pelvic wall and originates at a point posteriorly, practically corresponding to the location of the sacro-iliac joints. Now what happens? The ovarian veins are long veins emptying into the renal vein and vena cava, high in the abdomen and contain no valves. They return the major part of the blood

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

from the pelvis and are poorly equipped to carry on this extensive circulation On careful examination, it is found that these veins are full and congested up to the point where they cross the pelvic brim, but above that point are nearly flat and empty With these veins then in clear sight, the descended fundus is grasped and slowly lifted out of the pelvis to a point where the suspension is to carry it The following results are evident The ovarian veins, from the uterus to the pelvic brim, are immediately emptied, and the stretched parietal peritoneum of the infundibulopelvic ligament is relaxed In other words, the pull on the parietal peritoneum as it swings around the sides of the pelvis is overcome

It has been repeatedly demonstrated that in cases in which the fundus is retroverted, but in which the cervix is well held up, no such congestion of the ovarian veins takes place and there is no pull on the parietal peritoneum Replacing the fundus in these cases will have little or no effect on the parietal peritoneum or the ovarian circulation It is not the retroversion of the fundus per se which causes the symptoms That the two may be coexistent, that is, that the retroposed fundus may be accompanied by a cervical descent, often is true It is equally true, however, that the anteposed fundus plus cervical descent is accompanied by congestion of the ovarian vessels and peritoneal drag

It becomes necessary then for us to take into consideration in examining these cases only one factor, the posterior descent of the cervix Whether the fundus is forward or backward plays but a minor part in the production of symptoms If the cervical supports have given way, symptoms will be produced for which a suspension will give relief, whether we have a retroposed or anteposed fundus

As a result of these studies I have been led to suspend many anteposed uteri in which I found descent present accompanied by the classical symptoms of a retroposition, and with excellent results

It is far from my purpose to advise promiscuous suspension of every uterus, whether found forward or backward On the contrary, the differentiation of cases needing suspension has become much more exact and only those cases which can be proved before operation to require suspension are operated on, and this proof must be forthcoming from the patient as well as from the surgeon On the other hand, I no longer hesitate to suspend a uterus simply because there is no retroposition of the fundus, and I do hesitate to suspend a retroposed uterus simply because it is found on examination to be retroposed Actual proof that the condition needs correction must first be forthcoming

It is a marked feature of these cases of cervical descent that the patients have the same symptoms when lying on their back in bed as when standing upright This is necessarily so, for there is the same amount of descent and consequent ovarian congestion in this position It is found that many of these patients sleep lying flat on the abdomen, a position which in itself corrects the deformity temporarily and gives comfort

I would like to cite a typical case

Mrs B, aged 41 years, having three children, complained of low sacral backache and pelvic drag She had not been able to sleep on her back for five years on account of this backache, which was fully as severe when lying in this position as when on her feet Examination revealed a lacerated cervix and moderately relaxed perineum The fundus was of normal size and anteposed, but the organ as a whole was in marked posterior descensus in the pelvis The physician who referred the case urged that no suspension be performed, as the fundus was never retroverted The patient had, however, every symptom of a retroversion and I urged a suspension in addition to the repairs, and this was accepted On opening the abdomen the descent and congestion were clearly demonstrated and the emptying of the ovarian veins and relief of peritoneal drag was accomplished

From the moment the patient came out of ether the backache was completely relieved, and she has had no return of it Had we disregarded the descent of the anteposed uterus and performed only the plastic operation this result would not have been obtained

In a second case, a woman, 26 years old, who had never borne children and on whom no plastic operations were required, the anteposed but descended uterus was suspended with absolute relief

In one striking case I was led, by the urgent request of the family physician, to perform only the plastic operation because the fundus was in anteposition and the physician felt a suspension to be unnecessary This patient was not relieved in the least of her backache and pelvic symptoms, although she had been assured by her physician that her womb was not "tipped" and that after a repair of the lacerations her backache would disappear

This paper forms a plea for the recognition of a class of cases hitherto neglected or misunderstood, namely, the anteposed uterus in descent, causing the symptoms of retroposition, a plea also for the careful differentiation of cases which need suspension before any operation is performed We must not hesitate to suspend an anteposed uterus once it is proved that the organ is in descent and is causing symptoms, neither is it necessary to suspend a retroverted fundus simply because it is found to be lying in this position, when actual proof is not forthcoming that the retroposed fundus is at the bottom of the trouble A fundus may lie in third degree retroposition and the cervix be well held up without causing the slightest backache or pelvic drag

By careful attention to this detail only selected cases will be suspended and relief will always follow

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ABSTRACT OF DISCUSSION

Dr Channing W Barrett, Chicago This paper introduces the subject which bears on the general supports of the uterus throughout the relation of the intra-abdominal pressure on its ligaments and the pelvic floor, etc. It deals more particularly with the subject of the anteposed uterus which still has descent It has long been recognized that the retrodisplaced uterus has a more or less marked degree of descent but the subject of the anteposed uterus having marked degrees of descent is not well recognized Dr Hutchins points out the difficulties in reference to the upright position We would hear little of the question of malposition of the uterus if the human had retained the horizontal position and the pelvic outlet, its high point in the abdominal cavity, but, as the animal assumed the upright position, there had to be a change in that position, and that change has brought about certain necessities for support One of the changes has been the development of a pelvic floor with little or no support Another change is that of the position of the uterus from in line with the vagina to at less than right angles, which position has very much to do with the descent Therefore, we would lay more stress on the question of uterine displacement than does Dr Hutchins, because even though we may have uterine displacement without displacement backward, at a given time one of the principles of support of the uterus is interfered with, that of the uterus being out of line with the vagina As soon as the uterus is displaced backward it gets into line with the vagina and brings about descent No matter *how important it is* from the standpoint of support that the animal be in the horizontal position it has become the habit of the human to be in the upright position In the correction of the conditions we must aim to simulate Nature's provisions for support of the pelvic organs We must have a good pelvic floor As a rule, descent is concerned with some weakness of the pelvic floor, not necessarily weakness from childbirth, but from the tendency of the human to have a pelvic floor like that of the lower animals, from which the human has developed We must correct that condition of the pelvic floor, we must have the uterus out of line with the vagina I would be much more inclined to correct retrodisplacement than Dr Hutchins indicates in the treatment of descent

Dr **Albert Goldspohn**, Chicago The anteposed uterus is one located too far forward, too near the symphysis pubis It may stand high or low, and its long axis may be in a normal direction That is one thing Another is anteversion, which is a normal status, but may exceptionally become pathologic as the result chiefly of inflammatory complications Which of these does the essayist mean? Anteflexion is a deformity and not a displacement The main trend of the argument I understand to be that it is descensus uteri that causes the symptoms and not version of it either forward or backward In that I can agree only partially The symptoms produced by any kind of uterine displacement, per se, independent of inflammatory complications, are brought about chiefly through the resulting embarrassment in the venous circulation, by traction and by torsion of these vessels The traction the doctor would relieve but the torsion he would ignore Is that permissible? Bernhart Schultze many years ago, by very careful and laborious observations, first among the dead and then on the living, made clear the rules suggested by the anatomy of the parts, that anteversion is the normal position of the uterus, because the broad ligaments that carry nearly all these vessels are not cords, but flat, web-like structures set at such an inclination forward from the vertical axis of the body, that the uterus between them must likewise assume such a forward inclination if the broad ligaments are to preserve their normally flat shape, that when the uterus turns over backward, half of a circle or more, the web of broad ligaments being only from about 7 to 10 cm long and nearly as wide, is twisted into a cord and a corresponding embarrassment results to the veins that do not, like the arteries, have a force pump back of them This anatomic fact is not taken into account in the argument of the essayist We must relieve and correct not only the displacements of the uterus which induce traction on the veins, but also those which inflict torsion of them if we would be successful, for embarrassed veins means harassed nerves here as elsewhere in the body I heartily agree with the doctor in the proposition to suspend the uterus innocently and efficiently (by means of the round ligaments) and in a higher plane than is assumed by those who would have it remain necessarily within the small pelvis

Dr **Walter P Manton**, Detroit I agree heartily with Dr Hutchins For many years I have been carrying out a somewhat similar method of treatment It takes only a very minor degree of downward displacement often to produce very severe symptoms in these cases of anteflexed or anteposed uteri, and consequent venous congestion I do not quite agree that all of these cases need operative treatment If this fraction of a degree of descensus can be relieved, you have obtained the necessary results, and I have found that in many cases the good old-fashioned Smith or Hodge pessary, properly adjusted, will give as good results as shortening the round or uterosacral ligaments

Dr **E E Montgomery**, Philadelphia Too much attention is frequently paid to the displacement rather than to the complications associated with it In the great majority of cases, whether the displacement be anteposed or retroposed, the condition does not cause symptoms unless complicated with some inflammatory condition This inflammatory condition may, of course, be induced as a result of protracted congestion from the displacement As has been
mentioned the veins, being thin walled, - re readily
susceptible to interference with the passag d through
them by some disarrangement of the posi he organ
Many of these cases, however, can be relie t resort
to operative procedure by having the p e the
knee-chest posture and practicing deep bre allow-
ing the blood to be aspirated out of the g the
act of deep inspiration Many patients ar such
palliative measures, by care, exercise and of
intra-abdominal pressure by proper clothin e, it
seems to me, are important consideratio eat-
ment of these forms of discomfort

Dr **J H Carstens**, Detroit Always this m-
plicated affair If you read all the diff ns
advocated to relieve this condition it sho ve
a very complex affair to deal with in mo
One will persistently pursue certain meth
another strongly advocates some others
merly every one insisted on the perineum
that that was at the bottom of the whole t
the restoration of the perineum was the
And it did relieve some cases, but others it d
seen cases in which the perineum was torn in
for two inches and women running around w
dition for ten years with the uterus not displa
trouble with the uterus This proves that the p
not as much to do with it as some would say
other cases the repair of the perineum does
relief I have always looked on the question m
Montgomery has said, the uterus may be displac
no trouble unless there is some condition of th
tum, or appendix, usually adhesions, that ther
infection which is causing the trouble If in
you remove the adhesions the patient may get
out any operation for the displacement So far as
is concerned, I must say that I operate in accor
what I find Sometimes we may find a diseased
tube If so, I remove them and sew the stump into
part of the womb, thus lifting up the womb In n
such women have become pregnant and have had
trouble with their pregnancy than if such an oper
not been performed If you examine a woman like
months after sewing the stump in the lower angl
womb, you will find a normal instead of a twisted
with nothing done but *removal of the ovary* In oth
I do what I advocated more than twenty years ago
a woman is beyond the child-bearing period, and th
no chronic inflammation, I do a vaginal hysterectomy, s
ing the broad ligaments together The woman will get
and remain well without having the complicated opera
which is sometimes done Every case ought to be judged
its own peculiarity, and all these operations are more
less good

Dr **Henry Hutchins**, Boston Replying to Dr Barr
and Dr Goldspohn, I would never refuse to correct th
retroposition which we all recognize as one of the surgic
malpositions of the uterus in all cases where it caus
symptoms *The paper was chiefly concerned* with the ante
posed uterus which may be simulating the symptoms of
retroposition I would never advise operation for an ante
posed uterus, although causing symptoms of retroposition
until I had given other methods a sufficiently long trial,
such as the use of the Smith or Hodge pessary, the knee-chest position with deep breathing, etc By a sufficient trial
I mean two or more years *There is, however*, a class of
patients who do not want to wear a pessary They tire
of the knee-chest position and want to be put in good shape
In these cases I would advise suspension even of the ante
posed uterus when found to be in descent There is one
point on which I cannot quite agree with the statements

made that in all of these cases the great majority of symptoms are caused by adhesions and distinct pelvic disease Of course, these cases form an entire class by themselves There is a class where there are no pelvic adhesions, no pelvic disease, but still the anatomic displacement of the uterus is causing the symptoms They are two entirely different classes I do not think that there is a group of anteposed uteri which are in descent which will cause symptoms even without the presence of adhesions or pelvic disease

COLONIC INFECTIONS

SOME RARELY OBSERVED UNCLASSIFIED TYPES *

JEROME MORLEY LYNCH, M D
AND
W LANDRAM McFARLAND, M D
NEW YORK

In our experimental work on the vertebrates we have noted certain fundamental principles which have a bearing on the surgery of the gastro-intestinal tract, and particularly on the subject under discussion

It is demonstrable that the rate of progress of intestinal contents is directly proportionate to their toxicity To illustrate, the course through the duodenum and oral part of the jejunum is the most rapid of any, and the toxicity of these parts is the greatest Long ago Roger demonstrated a parallelism between the toxicity and digestive power of the intestine We believe that it exists, and that it is an important part of the bodily protective mechanism Moreover as regards the intestinal flora, are not these inversely proportional, both in number and in virulence, to the digestive activity? Again, as we have already stated,[1] the acid reaction which we have frequently demonstrated to be present in the terminal ileum is a further factor undoubtedly protective in character Evidently the hydrochloric acid of the stomach has a similar function

Inherent in every organism is its power of protection, equally well developed against attack, either from without or from within A thorough knowledge and a sympathetic interpretation of these fundamental protective properties seems to us of paramount importance in interpreting alimentary disease

We have further found it useful to recognize nature's division of the alimentary canal into the segments which are protected by the physiologic barriers or sphincters under control of the involuntary nervous system To these we have applied the generic terms cephalad, central, and caudad segments This division has been extremely helpful to us, because it conduces to a study of the entire canal as a unit, and if our observations have taught anything, they have clearly demonstrated that of all the systems in the body none has been studied and treated more disjointedly than the alimentary canal Thus we have long since put aside all considerations of isolated parts of the canal based on the anatomic divisions, having found it much more productive to seek an interpretation of aberrant conditions in terms of physiologic rather than morphologic units By this process of reasoning we have reached several important conclusions

As Sweet says,[2] working hypotheses are necessary to surgical progress The only hope of progress is to search along the lines indicated by physiologic hypotheses Looking at the alimentary canal, then, in its entirety and studying its pathologic physiology from a standpoint of physiologic sphincter segmentation, one notices that digestion is a segmental process, and is confined to the central segment The oral segment is preparatory The aboral is excretory

As one would expect from these facts, inflammatory lesions are most frequent in the caudad segment, in which the opportunities for trauma are greatest, owing to the character of the material, to the presence of great quantities of bacteria, and to the indisputable fact that the protective elements already noted as inversely proportional to the digestive powers are least

Focussing our attention more directly on the area of the intestine under special consideration in this paper, we first invite your attention to the ileocolonic sphincter There are many inherited misconceptions in medicine, not the least is that the ileum is separated from the colon by a mechanical valve Up to a short time ago our faith in the digestive function of the stomach was implicit Experimental and clinical proof has changed our views Proof from the same source is now abundantly at hand as regards the ileocecal valve Barsh, Draper and Barber proved that the ureterovesical protective mechanism was a neuromuscular contrivance, rather than a valve These same principles apply to the ileocecal sphincter Elliott and the authors have shown that this mechanism can be controlled by the injection of epinephrin We have performed injections on many persons presenting ileocecal insufficiency, as demonstrated by the Roentgen rays, and have shown that 10 minims of epinephrin is sufficient to control the leak, which later reappears This fact may be of use in establishing a differential diagnosis between leakage due to loss of internal secretory or sympathetic tone and mechanical interference with the closure of the sphincter

Another physiologic factor which has direct bearing on the topic under consideration is the recently described inhibitory center, located, according to Keith and Cunningham, in the terminal ileum Whether, as suggested by W J Mayo, this center may be of such great importance in the syndrome of constipation that its removal may be the chief cause of the improvement which not infrequently follows resection of the terminal ileum or not is a moot question Of its basic importance, however, there can be no doubt

With these principles in mind, we have assembled the last twenty-one cases of purulent infection of the colon which have come under our observation in the last four years and which have been treated according to the above principles Some of those cases were so severe in type and the constitutional conditions were so deplorable that a previous diagnosis of tuberculosis had been made The most striking example of this type occurred in one of the five cases seen by us in consultation at the Presbyterian Hospital through the courtesy of Drs Brewer, Carter and Swift, and in one referred by Dr Isaac Adler

Case 1 —L M was admitted Jan 1, 1916 complaining of blood in stools diarrhea, vomiting abdominal cramps and loss of weight These symptoms were of seven months' duration having come on gradually seven months before The

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

* From the Clinic of Rectal and Colonic Diseases Polyclinic Medical School and Hospital from the Laboratory [illegible] Hospital and from the Laboratory of Surgical Re[illegible] University

[1] Lynch and [illegible] Contribution [illegible]ology of the Colon [illegible] lxii, 441

[2] Sweet Intestinal Obstruction Ann Surg, 1916 lxiii, 720

vomiting usually followed the ingestion of food, but without relation to the character of the food. It has persisted at irregular intervals, but has never contained any blood. There was diarrhea with profuse, watery stools, from five to eight, every twenty-four hours, associated with some polyuria. Blood was not noted in the stools until three weeks before entrance. Painful swelling of the feet and ankles began six months before. The patient could not walk and was confined to the bed for a month, and treated in Mount Sinai Hospital for two weeks. He has had some pain in his hands but they have never been swollen. Dyspnea and orthopnea developed during the six months previous to entrance. Three weeks before the mother noticed some red spots over the anterior surface of the tibiae, which seemed to be tender.

On physical examination the patient was found to be poorly developed and very poorly nourished and appeared chronically ill. He did not appear to be in pain and showed no dyspnea or cyanosis. The skin was pale, smooth, hot and dry. There was no eruption on the chest, but on the anterior surfaces of both legs there were a number of small, rounded, nodular masses, slightly raised and a little tender. The skin over the nodules was reddened, and there was a little areola extending beyond. The tongue was coated somewhat, tonsils cryptic, but not enlarged. Otherwise the head was negative. The superficial lymph nodes on both sides under the angles of the jaw, some in the axillae, the epitrochlears on one side, and both inguinal groups of glands were palpable. The lungs were negative. The heart was slightly enlarged to the left, the sounds rapid, rather poor muscular quality, with a faint systolic murmur at the apex. The abdomen was slightly scaphoid, and moved slightly with respirations, which were chiefly thoracic in character. The abdominal wall was soft. There were no areas of cutaneous hyperesthesia or muscular rigidity or hypersensitiveness. In the right lower quadrant, midway between the umbilicus and anterior, superior spine was felt a compressible, tubular mass, nontender, which slipped under the finger and was thought to be a loop of intestine. The liver and spleen were not palpable, the lower pole of the right kidney palpable. A rectal examination revealed a tag just inside the sphincter, very much like a hemorrhoid.

On Jan. 7, 1916, the patient was seen by Dr. Fordyce, who regarded the skin lesions as probably tuberculous (tuberculids). A specimen taken for pathologic examination showed in frozen section chronic inflammation, the paraffin sections were unsatisfactory, and the sections for tubercle bacilli were negative. The blood cultures were sterile. The stools were negative for typhoid, parasites, blood and tuberculosis. There was much pus but no dysentery bacilli. On January 16 proctoscopic examination by Dr. Carter showed at the anus and extending up from the mucocutaneous junction several granulating ulcers. The sigmoidoscope inserted 18 cm. showed the mucous membrane granular with numerous areas of ulceration, which bled readily. A diagnosis was made of tubercular ulcerative sigmoiditis and proctitis.

A blood count showed red blood cells 5,700,000, hemoglobin 80 per cent, white blood cells 22,200, polymorphonuclears 62 per cent, lymphocytes 32 per cent. On January 5 the white blood cells had been 26,800, polymorphonuclears 88 per cent, and lymphocytes 12 per cent.

Two Widal tests were made which showed in 1 to 20, good clumping, 1 to 40, slight clumping, and in 1 to 80, no clumping. The von Pirquet was very faintly positive.

On January 20 the white blood cells were 16,000, polymorphonuclears 64 per cent, and lymphocytes 28 per cent. The urine was negative. The patient was seen by Dr. Brewer, who believed that the case was hopeless from a surgical standpoint, and not until operation was insisted on by Dr. Carter, who had seen some patients improve markedly on ileostomy, followed by irrigations of the colon, did he consent to do the following operation.

On Feb. 5, 1916, ileostomy was performed by Dr. Brewer. The cecum, ascending colon and transverse colon, as well as the descending and sigmoid colons, were found markedly thickened and the peritoneal surface somewhat roughened. The ileum was quite normal in gross appearance, as was the rest of the small intestine. There were a few enlarged glands near the cecum, which were firm, and one in the meso-appendix was removed for examination.

Procedure. A three inch vertical incision was made over the outer third of the right rectus about the level of the anterior superior spine. Exploration was done, the terminal ileum was brought into the wound, and the mesentery opened about 1½ inches from the ileocecal junction. A glass rod was inserted into this opening, and the loop of intestine brought out of the peritoneal cavity. A few interrupted sutures were put through the peritoneum and aponeurosis. The usual appendectomy was done, the stump being inverted. There was an enlarged gland in the meso-appendix which was removed for examination. The gland proved to be a normal lymph gland. A diagnosis of chronic appendicitis was made.

Daily dressings were done, and the colon irrigated with a solution of 1 to 5,000 potassium permanganate. The patient was kept on the roof, and given a liberal diet. His color improved, the skin improved, and he gained strength, but apparently no weight. When he was able to be weighed, four weeks after operation, he weighed 57½ pounds (he had weighed 67 pounds before operation). Irrigations which at first brought away considerable blood and mucus gradually cleared up. After five weeks' feedings of buttermilk, from 4 to 8 ounces were alternated with the irrigations, two or three times daily, and patient gained 22 pounds in six weeks on this procedure. He has rapidly improved in every way, eats very heartily and is quite active. He now weighs 79¾ pounds. He has had proctoscopic examination by Drs. Carter and Lynch, who now find the mucosa of the rectum and sigmoid quite normal in appearance, and believe that he is in good condition to have the ileostomy closed.

This boy gained 22½ pounds within six weeks after the operation. He was seen by us quite recently, and we advised closing the ileostomy. The restoration of the function is perfect.

CASE 2.—A. M., aged 23 years, was first seen September, 1911. The chief complaint at that time was epigastric pain coming on from one to two hours after taking food, and heartburn. Two weeks previously there had been an attack of diarrhea lasting ten days. A gastric analysis made by Dr. Adler approximately six months previously showed a simple hyperacidity. Antacid treatment relieved all symptoms. The bowels, with the exception above noted, were regular, and the urine was normal.

Physical examination made September, 1911, revealed no abnormalities other than an occasional friction sound and an occasional inspiratory crepitant rale over the right apex posteriorly.

The onset of the condition occurred in July, 1912, when a slight amount of blood was noted at stool. About two months later bleeding began again. Examination revealed two fissures radiating forward from the rectum. Rectal examination was negative. Under protargol the fissures healed rapidly, but the bleeding continued. Proctoscopic examination in December, 1912, showed an intensely congested membrane studded with pinpoint ulcers. Mixed treatment internally, combined with silver nitrate irrigations locally, produced diarrhea and augmented the amount of blood passed. In February, 1913, the patient was given a proctoscopic examination again, by a different man, who noted the same pathologic picture, but ordered a bismuth iodoform, oil irrigation, to be retained all night and a krameria, liquor antisepticus alkalinus irrigation for morning use. For two weeks slight improvement followed this treatment, but then the bleeding began in increased amounts.

Bacteriologic examination of the material showed streptococci of the viridans type and numbers of the *Bacillus coli* group. Dr. Barber inoculated guinea-pigs with some of the material and the pigs died after some weeks. The necropsy which I performed on them was negative.

In order to study the natural repairs in peritoneal and nonperitoneal covered end-to-end anastomosis, the pelvic colon of a dog was drawn up, cut, and anastomosed end to end as far caudad as possible at two different places separated by an interval of 5 cm. This operation was performed Feb. 3, 1914, and on February 16 necropsy was performed There was little difference in the lumina of the anastomotic openings The lower or nonperitoneal-covered was the smaller The liver, spleen and pancreas were congested Microscopic sections of the anastomosed areas showed unions by fibrous tissue growing in from stroma, submucosa, and muscularis There was very slightly increased vascularity of the caudad section (nonperitoneal), or no increase at all

In order to study the causative agent in hemorrhagic colitis, on March 27, 1914, hemorrhagic material was injected into the rectums, previously curetted, of two guinea-pigs and one rabbit On April 13 necropsy of one guinea-pig by the bacteriologist showed that the liver was congested, the mesenteric glands enlarged, and the appendix loaded with feces Cultures made from the glands showed a colon-like organism resembling morphologically the organism regained from the original material injected and previously examined bacteriologically Further cultural reports are forthcoming The remaining guinea-pig and rabbit are well and normal to all appearances On April 3, 1914, the same material was similarly injected into two guinea-pigs and one cat On the 11th one guinea-pig died Necropsy showed that the retroperitoneal and mesenteric glands were enlarged No cultures were taken, but microscopic study was made of the liver, spleen and glands No destructive changes were discoverable in either structure There was hyperplasia of the lymph nodes

Three Wassermann tests of the blood proved negative A stained smear of the rectal discharge prepared by Miss A H M showed a predominance of encapsulated diplococci, occasionally occurring in chains The only other bacteria found consisted of large thick bacilli An examination of the passages from the bowels showed a gram-positive diplococcus, a gram-negative micrococcus, and several gram-negative bacilli, together with pus and mucus The analysis at frequent intervals regularly gave normal findings On March 1, 1913, the hemoglobin was 65 per cent On March 8 1913, the hemoglobin was 70 per cent, red blood cells 4 600,000, white blood cells 9 600, polymorphonuclears 76 per cent, lymphocytes 22 per cent, eosinophils 2 per cent, the systolic blood pressure was 125 mm of mercury, and the diastolic 90 mm Moderate poikilocytosis and anisocytosis was present

On March 22, 1913 the white blood cells were 10,000, polymorphonuclears 74 per cent lymphocytes 26 per cent On the 26th a vaginal smear showed occasional large, round diplococci and thick bacilli March 3 and 7 5 and 10 million *B coli* C were injected Blood examination on June 10 to 13 by Miss H A M showed hemoglobin 70 per cent, red blood cells 4 800,000, white blood cells 7,200, polymorphonuclears 76 per cent, lymphocytes 24 per cent, and no abnormal cell formation

These histories are given in full because they are classic examples, the one of an acute type, the other of a chronic type with exacerbations

Of these twenty-one cases, eleven were definitely acute and ten were chronic, with acute exacerbation The average age of the patients in the acute group was 26 6 years, of those in the chronic group, 37 7 years The average duration of the acute type of the disease was 32 3 months, of the chronic, 70 months

Thus, there are certain types of acute purulent and hemorrhagic inflammations of the colon that cannot be attributed to any specific organism They are characterized by sudden onset of diarrhea, blood, mucus and pus Sometimes, as in Mummery's case, which closely resembles some of our own, the pulse was rapid, nearly imperceptible, the temperature 104, and the patient presented a picture of the third week of typhoid Emaciation is marked and prostration extreme The stools have a fetid odor and pus is passed in such quantities as to suggest the evacuation of an abscess The stench of this is overpowering

In other cases, though the diarrhea is severe and the amount of blood lost is considerable, still the digestive disturbances are slight, suggesting an increased peristalsis in the colon only

The proctoscopic picture of the acute form is typical The mucous membrane is edematous and dark red, granular, pebbly or bosselated in appearance It closely resembles fish spawn, loosely strewn over the surface and the mucous membrane appears to be lifted away from its subjacent structures There are no definite ulcers, the entire intestine being one confluent ulcer

As the acuteness diminishes the picture changes The mucous membrane is less edematous and covered by irregular patches of exudate, which closely resemble macerated skin Between the patches are irregular oblong ulcers, varying in size and depth, with overhanging edges and worm-eaten bases As the inflammation abates under treatment the mucous membrane becomes pale, and polygonal areas, separated by an arteriovenous network, give to the bowel a checkerboard appearance It still retains its granular character and bleeds easily if touched

Finally the mucous membrane seems to become adherent to the muscular coat and loses that elasticity of motion so characteristic of a normal bowel

After recovery, the dry, shiny, glassy appearance of atrophy appears The histopathology is perhaps more variable than the gross pathology and is therefore more difficult to give It is based in many cases on the examination of small bits of tissue removed with a punch, or to small pieces removed during the operation for colostomy It is that of an acute inflammation involving a mucous membrane and its subjacent structures In all cases there has been marked congestion accompanied by edema Congestion and edema may be limited to the mucosa or submucosa or may involve the entire intestine wall The mucosa may be covered with an exudate composed of pus cells, bacteria, and inflammatory elements It may be devoid of glands in case necrosis has progressed, or the inflammatory change may be limited to edema, congestion and accompanying swelling of gland epithelium In one case the exudate throughout was more marked in the mucous and peritoneal coats The crypts of Lieberkuehn had entirely disappeared and were replaced by an exudate composed of round cells The blood vessels were abundant on the free surface and engorged with blood The submucosa and mucosa had entirely disappeared, their place being taken by the exudative layer, which rested directly on the muscular coat Round-cell infiltration of varying degrees according to severity of process was of course observed This may be limited to the mucosa or involve the entire intestine and its peritoneal covering Lymphatic tissue presented no changes except those produced by adjacent inflammation Such parts of the plexus of Auerbach and that of Meissner as it has been possible to demonstrate appeared normal The muscular coats were at times involved in the general reaction and presented the usual appearance under such conditions In two instances the cecal wall was of tissue-paper thinness though all structures were demonstrable In one acute case submucous cell groups, simulating tubercles and containing giant cells, were found The tubercles were in structure like those produced in mesenteric glands by foreign body irritation Mucopurulent, blood-stained discharges from the lower intestine, so characteristic in these cases, have been repeatedly examined for bacterial and possible infusorial content The results of these examinations were distinctly disappointing in so far as throwing any light on the etiology of the condition No unusual forms of bacteria or predominating forms of bacteria were found

In 50 per cent of the cases the appendix showed a similar pathology

In addition to the twenty-one cases critically studied during the past four years, we have incorporated information gleaned from seventy-eight cases of our own and of the late Dr Tuttle, besides seventy cases collected from the literature Of the latter, however, very few conformed to the type of infection with which we are dealing, being of the specific type

Braun,[3] and Neumann and Mayer[4] in their writings have failed to suggest any other parasite than those already named

Kaufmann,[5] in his study of the specific infections limited to certain segments of the intestine, includes dysentery, both the amebic and the bacillary type, cholera, tuberculosis, syphilis, actinomycosis, anthrax and gonorrheal proctitis (described by Benson,[6] Bel,[7] Couret, Bowman[8] and others)

Schmidt[9] negates Kaufmann's classification and names the inflammatory diseases of the colon according to the segment involved and to the infecting organism

Aschoff[10] speaks of specific infections under the same headings He tends to regard the intestinal tract as a whole except when dealing with the appendix and the rectum

Boas, according to Schmidt, was the first to study and report a well-defined case of ulcerative colitis of indefinite etiology

Rosenheim[11] writes of a number of cases in which the physical signs, clinical symptoms, and the course of disease closely resembles those observed by us He advances several etiologic theories, change in chemical reaction of content of large intestine, change in activity and pathogenicity of intestinal bacteria, etc His patients have been as a rule under middle age, ranging from 8 to 40 years, and he has noticed that many of them were deficient in stamina Young, nervous, and anemic individuals predominated and sex exerted no apparent influence The pathology, as seen by Rosenheim, is that of a true infection of the mucous membrane, occasionally complicated by infiltration of the intestinal walls and peritonitis Erosions and especially ulcers were secondary manifestations The colon was affected in varying extent and intensity The sigmoid flexure was most commonly involved and anatomic changes were always more marked in this segment Multiple neuritis, endocarditis, and joint involvement were mentioned among the possible complications (Three of the authors' cases presented very severe skin infections) It is interesting to note that in 1908 Rosenheim said "The severe chronic colonic inflammations here considered are not mentioned in textbooks and only occasionally noted in literature Clinical pictures belonging to this class are here and there described as ulcerative colitis or dysentery " Zweig[12] understood by ulcerative colitis "every form of intestinal catarrh which, beginning as an acute inflammatory process of the mucous membrane of the large intestine, is eventually productive of ulceration Ulcers are usually in the rectum and sigmoid, but can extend to the cecum, and vary from lentil size to that of a thaler Symptoms are those of a general infection with frequent stools containing pus, blood and mucus The amount of blood may vary from an optically imperceptible quantity, to one or two liters, which latter quantity was lost by one of Zweig's patients The etiology was a matter of conjecture, but an unrecognized form of bacteria might be responsible The change in virulence of *B coli* should be considered He observed three cases in which achylia gastrica was well marked, and perhaps the antizymotic action of hydrochloric acid produced an increase in virulence of bacteria of the intestine, acute inflammation with ulceration resulting As predisposing causes he has found diverticula in three cases Operative procedures mentioned by Zweig were artificial anus at various portions of the colon, intestine junctions and appendicostomy He advocated measures that assured the intestine absolute rest by complete diversion of the fecal current

A contribution to the surgical literature of colitis is made by Beck [13] Though Beck is usually quoted in articles on colitis gravis, the conditions observed by him were secondary to organic disturbance of the intestinal tract, such as carcinoma, and the specific infections, such as tuberculosis, typhoid, etc The nervous elements were not considered by him as of primary value in colonic inflammations Ileosigmoidostomy was the operation advocated by Beck and employed by him in six cases Most comprehensive is the chapter devoted to colitis gravis by Schmidt This excellent article is well worth reading Within the last six years isolated cases of colitis gravis have been reported by Baustark,[14] Lindenberg,[15] Albu[16] and others Albu considers acute ulcerative colitis of doubtful origin very rare One of his two patients died of intercurrent disease, the other progressed to chronic ulcerative colitis, which Albu thinks is very seldom cured Lockhart Mummery described some interesting cases of what he termed acute hemorrhagic colitis Some of these closely resembled those seen by the authors He performed appendicostomy, but from experience with several cases in which this operation had been done, we feel certain that this operation is inadequate

In studying the literature, of which the foregoing is an abstract, one is impressed by the multiplicity of names and the hopeless intricacy of the nomenclature, also by the fact that the specific as well as nonspecific forms are grouped under a single head It is not to be wondered at, considering the newness of the topic and the difficulties under which one labors in isolating the specific cause of the differing dysenteries

As Herbert Carter has said, he is satisfied that many of the fatal cases with a diagnosis of bowel tuberculosis were in reality of the nonspecific type of infection and could have been saved by ileostomy Case 1 illustrates this The diagnosis was not always cleared up by the histologic findings, for we have noticed great difference of opinion among experts as to the interpretation of the microscopic change

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[3] Braun, Max Die tierischen Parasiten des Menchen 1908

[4] Neumann, R O, and Mayer, Martin Wichtige tierische Parasiten und ihre Uebertrager, 1914

[5] Kaufmann, Eduard Spezielle pathogenische Anatomie, Ed 5

[6] Benson, W Ztschr f Infektionskr, 1908

[7] Bel, G S, and Couret, M Jour Infect Dis, 1910, vii, No 5

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[12] Zweig Walter Arch f Verdauungskr, 1907, No 14

[13] Beck Arch f klin Chir, 1904, No 74

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[15] Lindenberg Arch f klin Chir, 1912, No 99

[16] Albu A Deutsch med Wchnschr, 1912, No 38

One is also impressed by the improper use of nonphysiologic measures We cannot, for instance, see the indication for an ileosigmoidostomy for acute infections of the colon as practiced by one of the above authors

There were eleven four plus acute cases Of these, nine patients were operated on, two refused operation Of those operated on, three were cured, three are pursuing the same clinical course and are rapidly improving, but sufficient time has not elapsed to place them under the cured cases Two are improved One was operated on by a colleague, but succumbed later to hemorrhage from the bowel An appendicostomy was done We think that cure might have resulted had an ileostomy been used in its place

The two who refused operation are improved under treatment, but suffer from acute exacerbation when treatment is discontinued

Of the patients operated on, two refused major operations (ileostomy), but submitted to appendicostomy They are pursuing the same course as the two cases medically treated, namely, they have gained rapidly in weight and are apparently well, but from time to time they suffer from acute exacerbation

We found it necessary in one case of ileostomy to perform a developmental reconstruction of the colon because a multiple segmental polyposis was grafted on the original infection This case has suggested to us repeatedly the relationship between polyposis and continued inflammation of this type

Of the three plus or subacute cases, there were nine Seven were operated on, four having been cured Three were complicated by diffuse multiple polyposis, although they have gained from 10 to 40 pounds, numerous polyps are present, and we therefore are unable to place them among those definitely cured Thus we cannot close them, and although all traces of inflammation have subsided, still we feel certain that if we were to turn on the current again, they would undoubtedly have a recrudescence One of these most interesting cases our colleague, Dr Treby Lyon, has already collaborated with us in reporting in an article giving full detail of his own case[17]

Of the remaining two, the first patient, an aged woman who had been bedridden and unable to recognize her family for more than a year, was mentally restored within a few days after ileostomy, and was able to return to her household duties Although she finally died one year after the operation, necropsy showed intercurrent renal involvement The results so far as justification of the operation went, were brilliant The restoration of this woman's intellect was amazing The last case, that of a baby of five years' postoperative standing, is quiescent while the ileostomy is open

Of the remaining two, one was a patient with multiple polyposis, having from sixteen to eighteen mucopurulent, serosanguineous stools daily when she entered the hospital Under medical treatment she gained in weight, and was having three movements daily when she returned home We advised her son, a physician, that it would be necessary for her to have an operation to insure cure

This is a very interesting group, in that many had been incapacitated for years, had had incomplete operations performed and were despondent and pessimistic as far as their chances of recovery were concerned Four out of the six suffered from stenosis at various levels of the canal and required more than one operation before they were entirely cured The stenosis was so extensive, in one case involving the descending colon, that end-to-side colosigmoidostomy had to be performed This patient, who was a fireman on the New York Central Railroad, has gained 40 pounds and is now in perfect health The fact that he requested to be transferred from an electric to the more strenuous work of coaling the Wolverine is sufficient proof of his capacity for work since his operation

Another patient of this group has a perfect restoration of function, notwithstanding the fact that she had a very marked stenosis of the rectum and part of the sigmoid, and had to live with a colostomy for two years After this the inflammation had entirely subsided, the stenosis had spontaneously improved through fibrolysis, lateral anastomosis was done to prevent any recurrence at the most contracted portion of the stenotic area

Of the subgroup double plus acute, containing two cases, both were operated on One is absolutely well, the other is very much improved, having still some stenosis which requires constant medical supervision

What deductions can be drawn from these twenty-one cases of colonic infection? First, that acute purulent infections of the colon can be cured only by putting the entire involved bowel at rest Local treatment is indicated in every case and should have a satisfactory trial before surgical measures are instituted It has the advantage of putting the patient in the best possible position to withstand a surgical operation, because he always improves at least temporarily under proper local measures The striking improvement after ileostomy is seen in the very acute cases Especially was this so in the case we saw in consultation with Dr Carter The two patients operated on by ourselves and this one operated on by Dr Brewer prove conclusively that this is the ideal operation when the entire colon is involved

The old idea that if a stoma were made in the small intestines the patient would lose weight and rapidly decline has been proved to be a fallacy The gain in weight in every case supports the theory that we have long held that there is an inhibitory center in the lower ileum, the activity of which is accentuated after ileostomy, and even though it sometimes takes weeks or months before this function is fully developed, still it does come eventually, and the majority of patients suffer little more inconvenience than do those who have a stoma in the colon *The dictum which we laid down in a previous paper that a stoma, to be efficient, must always be placed oral to the infection, still holds good*

Of the twenty-one patients, six had appendicostomies, and while these improved temporarily and gained in weight, none is nearer to a cure than are those that have been treated by rectal irrigations We lay particular stress on this because our friend, Dr Willy Meyer, has always felt that appendicostomy would have accomplished the same result Sufficient time has now elapsed to prove this to be erroneous

A patient was seen by one of us (Lynch) in consultation with Dr Isaac Adler about three years ago This patient was of the same type as the patient in the second case cited in this article. We suggested ileostomy at the time, but he refused to consider it. Subsequently Dr. Lilienthal performed appendicostomy, and the patient gained in weight, but has acute exacerbations.

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[17] Lyon Treby Ann Surg lxii 441

There was one other case which proved exceedingly instructive and further confirmed us in our view that appendicostomy is not the operation in these cases. This was a case (Case H.) of acute infection. We performed an appendicostomy and the patient improved slowly. After six months he developed very large, deep and elongated ulcers in the rectum. We then performed a colostomy. Almost immediately there was a marked improvement in the patient's condition. He gained 30 pounds within a month or two, and within a comparatively short period began to resume his occupation. During all the time he had appendicostomy, though improved, he was still unable to attend to his work. While this patient is not entirely cured, yet in the light of our present knowledge and experience with similar cases we feel sure that he will have a complete restoration of function. We mention this as a further argument in support of our theory that appendicostomy is not sufficient.

Patient B, of the three plus grade, had been sick for six years previous to coming under our care. The mistake had been made in his case of placing a stoma in the middle of the inflammatory area. This patient subsequently was restored to health, but required several operations, and the convalescence was considerably prolonged by the fact that the surgeon who first operated did not appreciate the principles underlying the condition.

Of the twenty-one cases, three were complicated by a multiple polyposis. In one case in which we had performed a previous ileostomy we found it necessary to perform a reconstruction on account of a polyposis limited to the cecum and ascending colon. This patient is absolutely well.

Of the two others, one has improved immensely under local treatment. This was the patient referred to by Dr. Wyeth, but who refused to have ileostomy. She returned to her home in the South, and is now being cared for by her local family physician. The other had an ileostomy and has gained 40 pounds since the operation, and is a practicing physician in a neighboring state. He suffers no inconvenience, but still having some polyps left, he does not feel that his present symptoms would justify him in risking the radical operation, which would probably mean removal of the entire colon. From observations on this patient we feel sure that there is progressive regression of the polyps since operation.

From this study we have also gleaned some facts which will have an important bearing on the future treatment of strictures, namely, that if a stoma is made oral to the infection in every case, restoration of function will result. This particularly applies to strictures with multiple fistulous openings on the outside. The most brilliant results we have obtained have been in the above-mentioned cases. No attempt should be made to split open the fistulous tracts, as these gradually disappear with the infection, so that when one comes to close the stoma, instead of having an incontinent patient, as we formerly had, there has been complete restoration of function.

In conclusion we may state that purulent infections usually begin as an acute process, and may become subacute or chronic; that the segmental character of many infections suggests diminished tissue resistance due to a change in the vasomotor nerves as an etiologic factor; that active bacterial agents have not as yet been demonstrated, but that these perhaps belong to the normal bacterial flora of the intestinal canal; that a rapid increase in weight is compatible with a stoma in the small bowel; that purulent infections are very often overlooked because there is no definite ulceration. This mistake is caused by the extensive inflammation, for the blood and pus which covers the bowel may easily be supposed to come from some other part of the intestinal canal, and by the fact that the observer is dealing with an acute purulent infection which may be segmental in type. This should be appreciated early because we believe that particularly in the segmental type of infection the best results are obtained by making a stoma early in the disease.

ABSTRACT OF DISCUSSION

Dr. J. W. Draper, New York: I have seen a number of these cases with Dr. Lynch and can corroborate all he has said concerning them. That the involuntary system supplies many nerves to the colon which have their cells in the stellate ganglion accounts for the esoteric stomach symptoms so often associated with colonic disease. Elliott has shown that the thirteenth thoracic ganglion is in most active relation with the ileocolic sphincter. Ileostomy, though not yet in general use, like many other newly applied procedures, is relatively old, having been first done by an Italian twenty years ago. Dr. Lynch, however, was the first to appreciate the value of this operation and to apply it with a specific object in view. Sufficient time has now elapsed to prove its value beyond doubt. Moreover, it is based on sound principles in that it affords physiologic rest to the colon, and because it conforms to the law that a stoma, to be effective, must be oral to the infection. Our statistics have shown that in 50 per cent. of cases of colonic infection the appendix has the same pathology as the colon, suggesting that the original focus was appendicular. Ileostomy has had so immediate an effect on the nervous and mental conditions that we have been inclined to believe it traceable to a direct reflex of unknown character on the glandular secretions of the duodenojejunal epithelium. This hypothesis has derived some support from Barber's proof that the duodenum will dilate and contract in response to certain fixed operative procedures on the caudad ileum.

Dr. Jerome Morley Lynch, New York: I merely wanted to mention the medical treatment because in all these cases, except in the acute, and even in the acute at times, the method is well worth trying. A solution of potassium permanganate 1:5,000 is very helpful. In fact, some of the subacute cases we have been able to cure by using these irrigations of potassium permanganate or a teaspoonful of hydrogen peroxid to 1 quart of water. Medical treatment is worth trial in all cases, but physicians should be careful not to prolong it beyond the point where serious damage to the intestine may result. If it fails, there should be immediate recourse to surgery.

Proprietary and "Patent Medicines."—America has been called "The Paradise of Patents." For the immense fortunes that have been accumulated by the proprietary and patent medicine combinations, the promoters owe a debt of gratitude to the members of the profession that will never be revealed until the victims file their complaints at the opening of the books of "the recording angel." The course pursued is not so much a reproach on the integrity of the doctors as a reflection on their common sense and business acumen. While enriching the manufacturers, the dispensers have gained little and the patients have been made "poor indeed." The "proprietary prescribing habit" has been as fatal to the best interest of the doctors as the "dope habit" has been destructive to the health and happiness of its unfortunate victims.—Crenshaw, *Kentucky Med. Jour.*, September, 1915.

THE PARALYSIS OF POLIOMYELITIS

ITS TREATMENT IN THE EARLY STAGES

H B THOMAS, M D
CHICAGO

Every one appreciates the great importance attached to the earnest research being done to enrich the epidemiology of infantile paralysis, and sincerely hopes that, before another year, means of prevention and control will be at our disposal But while the management of paralysis continues to confront us, much permanent damage can be prevented by proper treatment It is not amiss, therefore, to review at this time the management of the paralysis

Especial attention should be called to the advantages of less vigorous and more closely supervised treatment in the case of weak muscles As Lovett and others have pointed out, the greatest danger to the convalescing infantile case is fatigue of the weak or paralyzed muscles Fatigue should be prevented This is not easily accomplished, because we are dealing with the child in all his vigor, except for the muscular defects The chance to experiment with his arms and legs, which have been unable to serve him for awhile, but whose strength is now returning, encourages him to make them pull him about, thus using them until they are exhausted

If I were allowed only two words of caution or advice to physicians, and through them to the parents of the many beautiful children stricken during the present epidemic of infantile paralysis, they would be Prevent fatigue By this I mean fatigue not only from the active movements of the child, but from passive motions and also from massage or electricity

I believe that 25 per cent permanent gain in muscular strength will be the reward when the weak or partially paralyzed muscle groups are properly protected and guided so there is a minimum of fatigue

During the treatment of deformities in long-standing infantile cases I have frequently been surprised at the return of muscular power following total or partial rest of the paralyzed or weak member

During the present epidemic in Chicago, I have had an opportunity to study the paralysis in its acute stage while the patients were yet in the contagious ward for the five weeks' isolation Some of these patients have been followed up after their dismissal from the hospital, and their early progress with and without treatment noted The results suggested the following outline

As these suggestions are intended for the physicians into whose hands the patient may fall after leaving the hospital, it is not necessary here to detail the management during hospitalization

THE MILD TYPE OF PARALYSIS OR WEAKNESS

When the patient leaves the hospital, all tenderness and spasticity have usually disappeared in those cases which showed such symptoms, and the paralysis in the mild, near abortive type may, by this time, be apparently gone When such is the case, the parent may accuse us of a mistake in diagnosis and isolation We are particularly anxious that in this type of case there should be a card of written directions and that a physician should be called in Otherwise, the fatigue following the childish exertion may permanently weaken groups of muscles which otherwise would become normal Observation of this mild type will give the suggestion for management

We should look for

1 Weakness of back muscles when the child is sitting Tendency toward curvature may be observed, and the proper care of these weak muscles may prevent a fixed scoliosis in later life

2 Drop foot, eversion, inversion, etc, when lying or sitting

3 Bending of the knee backward when standing.

4 Outward rotation of the thigh, abduction, adduction, etc, when lying down

5 Weakness or dragging of the leg after play or after a long walk

Frequently an apparently normal child, one which shows no signs of muscle weakness during the physician's examination, will be found to tire in groups of muscles by the end of the day Permanent lameness may be prevented if fatigue is never allowed In this near abortive type of paralysis, there is usually no tendency toward deformity on weight bearing, and no supporting apparatus is needed Limited active and passive motions are permissible, also massage, but too much should be avoided, and an effort should be made to prevent fatigue If the family is allowed to treat the child, the greatest gain will follow instructions to rest, and to give massage and passive motions guardedly

THE SEVERE TYPE OF PARALYSIS

Among the children who leave the hospital are those who cannot stand or sit or use an arm Their muscles appear normal, otherwise, but it is well to watch them for weak back muscles, etc, as in the near abortive cases Attention is too often fixed on the paralyzed muscles, and the weak groups are unnoticed and neglected

This severe type with deformity needs such support as the position suggests Drop foot should have permanent support by removable apparatus, preventing position contractions and deformity, allowing no stretching and fatigue of the weak muscles by the pull of the opposing normal ones Later, massage and passive and active motions should be used when indicated, and the effect on the muscles watched as a guide for continued treatment It is much safer to underdo than overdo When, on testing the muscles on the day following treatment, the power is found diminished, this is a plain indication for more rest and support and for less vigorous activity The operative and muscle-educational treatment of the deformities which often follow infantile paralysis need not be considered here It is generally admitted, I think, that electrical treatments should be used only in exceptional cases There is normal sensation in this paralysis Enough current to reach the affected muscles is too much for the surface, and the effects on the paralysis do not justify its use

CONCLUSIONS

1 Recently much that is new has been learned regarding the care of the weakness and paralysis of poliomyelitis

2 These weak and paralyzed muscles are sick muscles, with deranged nerve and blood supply, and should be treated as such

3 Sick muscles tire easily, not only by active use, but also by passive use and by massage, and when they tire they are less able to functionate the following day Their ultimate usefulness is also harmed

4 Study the result following the treatment Undertreat rather than overtreat Avoid fatigue

30 North Michigan Avenue

A CHILD WEIGHING TWENTY-FIVE POUNDS AT BIRTH

D P Belcher, M D, Sale City, Ga

Mrs R W C, aged 35, height 5 feet 7 inches, weight 220 pounds, circumference at hips 50 inches, multipara, delivered Feb 22, 1916, has had eight normal children, including a twin birth These children have averaged from 7 to 9 pounds in weight She had three miscarriages April 15, 1915, she aborted after about a six weeks' gestation Soon after she became pregnant again Early nausea and vomiting were more marked than in the previous pregnancies Labor began Feb 11, 1916 Vaginal examination at 8 p m during the first stage showed left occipito-anterior presentation The os was patulous, and permitted the introduction of three fingers The labor pains were of normal frequency but short After an hour, the os admitted four fingers, and the pains were still short The patient was given 5 minims of pituitary extract, the pains became more severe, but had little effect on the passage of the head In two hours the 5 minims of pituitary extract were repeated, the pains now became strong The os was normally dilating, but there was still slight progress of the head At 2 a m, after a consultation with Dr A S Hargrove, the patient received a third dose of pituitary extract of 15 minims At 3 30 a m, the head was born The posterior shoulder was delivered with great difficulty Much greater difficulty, however, was experienced in delivering the anterior shoulder, but with the added assistance of Dr A T Stevens, this was finally rotated posterially, and accomplished It required the combined efforts of the three physicians to deliver the remainder of the body The child was a girl, weighing 25 pounds, it measured 12 inches across the shoulders, 28 inches in length and was perfectly formed It was born dead On examination of the mother, the perineum was found slightly lacerated This was completely repaired by three sutures Chloroform anesthesia was used She made an uneventful recovery

[Comment—This case is remarkable as it was a girl child and the maternal measurements, as given, taken after delivery, were not abnormal save for circumference at the hips, which is rather large The author states that the baby was perfectly formed, therefore, we may assume its head was relatively large, yet it was born without mechanical assistance and caused but slight perineal laceration

W T Lusk ("Science and Art of Midwifery") gives the average weight as 7 pounds, and quotes Bailly as giving the average weight for boys as $7\frac{9}{10}$ pounds, and for girls, $7\frac{1}{10}$ pounds

Lusk also states that the largest baby born in Bellevue Hospital, New York, weighed 11 pounds, but that he personally delivered, with forceps, one weighing 15 pounds He also cites a case of Waller's in which the child weighed 15 pounds, 15 ounces Lusk quotes Dr Gleavis of Virginia, who reported that he had delivered a woman of a child weighing 18 pounds Kormann claims to have delivered a woman of a baby weighing 9 8 kg, that is, $21\frac{56}{100}$ pounds

Playfair in the seventh American edition of his "Midwifery," mentions that a Nova Scotia giantess gave birth to a child weighing 23¾ pounds at term She was 7 feet, 9 inches high Her husband was also gigantic, 7 feet, 7 inches The child was born in Ohio It was their second It was lost in birth, as no forceps could be procured of sufficient size to grasp the head The fetus weighed 23¾ pounds, and was 30 inches in length Their first infant weighed 19 pounds

Birnbaum ("Malformations of the Fetus") mentioned a child weighing 11,300 gm ($24\frac{8}{10}$ pounds) at birth Gould and Pyle ("Anomalies and Curiosities of Medicine") quote a number of instances of births of abnormally large children—one case in which the fetus weighed 24 pounds

An apparently carefully reported case is that of F Ortega (Fetus gigantesque mort-ne, pesant nu 11,300 grammes, long de 70 centimetre et large, d'un acromion a l'autre, de 19 centimetres, *Nouv arch d'obst et de gynec*, 1891 p 481) The mother, a very tall Italian blonde, a primipara, was forty hours in labor The child was born dead Forceps were unsuccessfully applied The child weighed $24\frac{8}{10}$ pounds (105 kg) The maternal pelvis is described as very wide and roomy, and there was no tear The child was weighed with a balance scale It was 70 cm long (over 27 inches), and was 19 cm (7½ inches) across the shoulders The umbilical cord was as thick as the operator's thumb The birth of the shoulders was the most difficult part of the delivery The woman was up on the ninth day

On comparing the measurements given in Dr Belcher's report, and those recorded in Ortega's case, we find that they tally fairly well, as the following will show

	Case Reported	Ortega
Weight	25 pounds	$24\frac{8}{10}$ pounds
Measurements across shoulders	12 inches	7½ inches
Length	28 inches	Over 27 inches

Ortega describes also great difficulty in birth of the shoulders

A study of the reports concerning the birth of abnormally large children is likely to show that the weight and measurements are not always carefully taken There is invariably a tendency to exaggerate the unusual In all the cases cited, the infant's weight is less than the case reported above—Ed]

THE CAUTERY IN TREATMENT OF JACKSONIAN EPILEPSY

Frederick A Rhodes, M D, Pittsburgh

History—Mr F S, aged 18, referred to me by Dr Sell, March 22, 1915, had been well until the age of 3, when he fell while crossing a railroad track, and was caught by a freight car on a passing train and dragged nineteen ties He was unconscious for some days He recovered from the accident fairly well, except that the left side of the body, arm and leg, was paralyzed for three months He had to be taught to walk again At 8 years of age he was hit on the side of the head with a brick, sustaining a depressed fracture on the parieto-occipital region Convulsive attacks began when he was 10 years of age They were at first of the grand mal type and very frequent They gradually diminished in frequency until he was 16 years of age, when they were very few

During the last six months the attacks have assumed the form of typical jacksonian epilepsy, occurring two or three times a week The patient is not always unconscious in these attacks, but must lie down The aura is quite constant, and consists of a numbness and pricking in the left hand rapidly passing up the arm, when it reaches the elbow "he is gone" He learned well at school until 10 years of age, after which he was unable to attend much but studied at home He is quite an intelligent looking young man, well developed physically Examination of the eyes shows the retina normal with no evidence of intracranial pressure On account of the severity and the frequency of the attacks, it has been thought unwise for him to go far from his home without a companion Examination of the head shows a slight depression in the right parietal region

Operation and Result—The patient was operated on, March 25, 1915, under ether anesthesia The skull was trephined over the right motor area There were dense adhesions of the skull and the dura The cerebral cortex was somewhat necrotic The arm area was removed with the galvanocautery and the wound closed There was complete paralysis of the left arm, forearm and hand by the second day This rapidly disappeared The patient made an excellent recovery from the operation, and was shown at the Allegheny County Medical Society, May, 1915, at which time he stated that he was entirely free from attacks and was learning a trade, working every day As he is still entirely well and working, I feel that sufficient time has elapsed to report the case

COMMENT

The interesting part of his history is that he was twice injured in the right motor area The important point in the treatment is the removal of the motor area by the cautery which is much more satisfactory than by the knife, it is followed by less bleeding and there is less possibility of as many adhesions I have since used this method in other cases with good results These will be reported later There seems to be little doubt that the motor area of the opposite side takes on the functions of the destroyed area The operation should produce a paralysis of the affected part by which we know that we were successful in cauterizing the right area This paralysis is generally quite marked by the second day and disappears rapidly after the first week

Therapeutics

CARDIOVASCULAR-RENAL DISEASE

With the strenuousness of this era, this disease or condition, which may be regarded as one of the accompaniments of normal old age, has become of grave importance, and nowadays frequently develops in early middle life. If it is diagnosed in its incipiency, and the patient follows the advice given him, the progress of the disease will generally be inhibited, and a premature old age postponed.

In the beginning the symptoms and signs of this disease are generally those of hypertension, and the treatment and management is that advised in hypertension. If the kidneys show irritation, as manifested by the presence of albumin and casts in the urine, or if they show insufficiency in the twenty-four-hour excretion of one or more salts or other excretory product, the diet and life must be more carefully regulated than advised in hypertension, and the treatment becomes practically that of chronic interstitial nephritis.

Sooner or later, in most instances of this disease, whether hypertension, chronic endarteritis or interstitial nephritis or any combination of these conditions is most in evidence, the heart will hypertrophy. As long as the circulation in the heart itself is good and not impaired by coronary sclerosis, and as long as this slowly developing chronic myocarditis has not advanced far, cardiac symptoms will not be in evidence, but if these conditions occur, or if the blood pressure is so greatly increased as to damage the aortic valve or strain and dilate the left ventricle, symptoms rapidly appear, and the heart must be carefully watched. Subsequently, as the disease advances, if the patient does not die of angina pectoris, apoplexy or uremia, the symptoms of cardiac decompensation will develop. As the heart begins to fail, a dilatation of the right ventricle causes passive congestion of the kidneys, and the chronic interstitial nephritis may progress more rapidly. It is often difficult to decide which is more in evidence, heart insufficiency or kidney insufficiency. The more the heart fails, the more albumin will generally appear in the urine, and the lower the blood pressure, especially the diastolic. The more insufficient the kidneys, the higher the blood pressure, especially the diastolic. The location of the edema will aid in deciding which condition is most in evidence. If the edema is pendent in feet, legs and perhaps genitals when the patient is up, with its disappearance at night, and more or less backache and pitting of the back in the morning, it is the heart that is most rapidly failing. If there is more general edema, the hands and face puffing, and there are considerable nausea and vomiting, headache and drowsiness, and perhaps muscular twitchings, with neuralgic pains, the most serious trouble at that particular time lies in the kidney insufficiency.

Kisch[1] sums up the prodromal symptoms and signs of cerebral hemorrhage. The heart is generally enlarged and hypertrophied. The patient is likely to be overweight or adding weight, and to suffer from intestinal indigestions. Signs of sclerosis of the blood vessels of the brain are evidenced by transient dizziness, headaches, impaired sleep, loss of memory, especially for names and words, slight disturbances of speech, momentary perhaps, and more or less temporary localized numbness of the hands or feet, or arms or legs, with perhaps flushing of some part of the body, or little localized spasms of vessels of other parts of the body, causing chilliness.

There is also a marked hereditary tendency to apoplexy.

Cadwalader,[2] after considerable investigation, has come to the conclusion that large hemorrhages into the brain are the rule in apoplexy, and that small hemorrhages are rare, and he is inclined to think that even small, as well as large hemorrhages, are more frequently fatal than supposed. In other words, he thinks that many of the nonfatal hemiplegias are caused by vascular obstruction and softening and not by hemorrhage. He finds that sudden death, or death within a few minutes, does not occur from hemorrhage, even if the hemorrhage is large, though a rapidly developing and persistent coma usually indicates a hemorrhage. If the coma is not profound and is slow in its onset, with symptoms noticed by the patient and cerebral disturbance, he believes it to be caused generally by softening of the cerebral center, due to some obstruction of the blood flow, and not to hemorrhage. While occasionally a slowly increasing loss of consciousness may be due to hemorrhage, he thinks it is doubtful if real hemorrhage ever occurs without loss of consciousness, while softening of some part of the cerebrum may occur without unconsciousness. He thinks that the size of the hemorrhage is of more importance than its situation in causing the profoundness of the symptoms, but he repeats that nonfatal cases of hemiplegia are generally caused by vascular occlusion and subsequent softening, and not by hemorrhage.

TREATMENT

While it is urged, in preventing the actual development of this disease, and in slowing its progress, that it is advisable to lower a high blood pressure, we must remember that this blood pressure may be compensatory, and many times should not be much lowered without due consideration of the symptoms and the patient's condition. It is better not to use drugs of any kind in this incipient condition. The hypertension should be regulated by the diet, the purin bases and meat should be reduced to a minimum, tea, coffee and alcohol should be prohibited, and tobacco should be either entirely stopped or reduced to a minimum. Regulated exercise is always advisable, the amount of such exercise depending on the condition of the circulation. Ordinary walking and graduated walking or graduated hill climbing and golfing are good exercise for these patients. Mental and physical strenuosity must be stopped if the disease is to be slowed. Sleeplessness must be combated, and perhaps actually treated medicinally, and for a time sufficient doses of chloral are perhaps the best treatment. The administration of chloral must always be carefully guarded to avoid the acquirement of dependence on the drug. Mouth and other infections should be sought and removed. Warm baths, Turkish baths, electric light baths or body baking may be advisable, and certainly obesity must always be combated by a regulation of the diet. In obesity, stimulants to the appetite,, such as spices, condiments, and even sometimes salt, must be prohibited. Butter, cream, sugar and starches must be reduced to a minimum. A small amount of bread and a small amount of potatoes should be allowed. Liquids with meals should be reduced Fruits should be given freely Intestinal indigestion should be corrected, and free daily movements of the bowels should be caused If the patient is obese, and especially if the blood pressure is high, the administration of thyroid extract is very beneficial This is particularly true in women suffering from this disease, but the patient should be carefully observed during its administration It may be advisable to administer small doses of iodid instead of the thyroid treatment, or coincidently with it Nitrites had better be postponed, if possible, for cardiac emergencies

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[1] Kisch: Med. Klin., Feb. 27, 1916.

[2] Cadwalader, W. B.: A Comparison of the Onset and Character of the Apoplexy Caused by Cerebral Hemorrhage and by Vascular Occlusion, The Journal A. M. A., May 2, 1914, p. 1385.

White,[3] after studying 200 cases of heart disease, finds that men are more subject to auricular fibrillation, auricular flutter, heart block and alternation of the pulse than are women The greater frequency of syphilis in men than in women should be considered in this difference in frequency

White finds that hyperthyroidism of long standing is often attended with auricular fibrillation He does not find that alcohol, tea and coffee play much part in causing these serious disturbances of the heart His conclusions on this subject are certainly a surprise, and do not coincide with the experience of many others It would seem that one of the causes of the greater frequency of these disturbances in men would be the amount of alcohol and tobacco used by men

When the heart begins to fail from a gradually progressing myocarditis, the pulse rate generally increases, especially on the least exertion, and on fast walking may be as high as 120 or 130 a minute, or even higher It may be found near 100 on the least exertion, even after some minutes of rest These patients must have more or less absolute bed rest When this condition occurs in old age, however, prolonged bed rest is inadvisable, for if the heart once loses its energy, in such cases, it is practically impossible to cause a return of normal function However, in all acute cardiac insufficiency in this disease, due to some heart strain or exertion that was unusual, a bed rest of from one to two weeks and then gradually getting up and returning to normal activity is the proper treatment, and will generally be successful in restoring more or less compensation These patients may well recline in bed with several pillows or with a back rest During any cardiac anxiety in this kind of insufficiency the patient breathes better when he is sitting up or reclining with the head and shoulders high The reason for this is probably because his heart has more space in this position—the same reason that he breathes better when his stomach is empty Very indicative of the coming cardiac insufficiency is the inability to lie at night on the left side The pressure of the body, especially if the person is stout, interferes with the heart action and causes dyspnea and distress Some short, fat patients with cardiac distress caused by this disease must even stand up to relieve the condition, the erect position giving still more space for the action of the heart

Before these patients get up, after a period of bed rest, slight exercises should be done, perhaps resistant exercises, to see what the effect is on the heart, and also gradually to cause increase in cardiac strength, much as any other training exercise Whatever exercise increases the heart rate more than twenty-five beats is too strenuous at that particular period The exercise should then be still more carefully graduated If the systolic blood pressure is altogether too low for the age of the person or for the previous history, it should be allowed to become higher, if possible, before much exercise is begun

The diet should be nutritious, but, of course, modified by the condition of the stomach, intestines and kidneys, and whether or not the patient is obese The bulk of the meal should be small, and nutriment should be given at three or four hour intervals during the daytime

The Karell milk diet or so-called "cure" was first presented in 1865 by Phillippe Karell, physician to the Czar of Russia This treatment was more or less forgotten until lately, when it has been more frequently used in kidney, liver and heart insufficiency Its main object in kidney and heart disease is to remove dropsies In cardiac dropsy it is advised to give 200 c c of milk for four doses at four hour intervals, beginning at 8 o'clock in the morning Whether the milk is taken hot or cold depends on the desire of the patient This treatment is supposed to be kept up for six days, and during this time no other fluid is given and no solid food allowed During the next two days an egg is added to this treatment, given about 10 o'clock in the morning, and a slice of dry toast, or zwieback, at 6 p m Then up to the twelfth day the food is gradually increased, first to two eggs a day, then more bread, then a little chopped meat, then rice or some cereal, and by the end of two weeks the patient is about back to his ordinary diet During this period the bowels are moved by enema or by some vegetable cathartic, or even castor oil If thirst is excessive, the patient must have a little water, and if the desire for solid food is excessive, even Karell allowed a little white bread and at times a little salt He sometimes even prolonged the period of treatment to five or six weeks

Various modifications of this treatment have been suggested, such as skimmed milk, and more in quantity, or a cereal is added more or less from the beginning, and perhaps cream The diuretic action of this treatment is not always successful Also, sometimes the treatment is even dangerous, the heart and circulation becoming weaker than before such treatment was begun Certainly the treatment should be used in cardiac insufficiency with a great deal of care, although it is often very valuable treatment It should be emphasized that most patients with cardiac dropsy receiving the Karell treatment or a modification of it should also receive digitalis in full doses, and should have daily free movement of the bowels It should be urged, however, that too free catharsis in cardiac weakness is to be avoided, and the prolonged use of salines, and sometimes even one administration is contraindicated Before cardiac failure has occurred in this disease, once a week a dose of calomel or a brisk saline purge is advisable, and is good treatment, but when cardiac weakness has developed, free catharsis is rarely indicated, although the bowels should be daily moved, and vegetable laxatives are the best treatment The upper intestine and the liver and kidneys may be relieved by a more or less abrupt modification of the diet, or even a starvation period, and the bowels will generally become cleaned, but frequent profuse purging with salines or some drastic cathartic puts the final touch on a cardiac failure

Recently Goodman[4] presented a report of his studies of the Karell treatment in cardiac, renal and hepatic dropsies He finds that patients with uremia ordinarily should not be subjected to the Karell cure, such patients needing more fluid

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[3] White Boston Med and Surg Jour Dec 2, 1915

[4] Goodman, E H The Use of the "Karell Cure" in the Treatment of Cardiac, Renal and Hepatic Dropsies, Arch Int Med, June, 1916, p 809

As long as the patient remains in bed, and as long as his ability to exercise is at a minimum, gentle massage is advisable

In these cases of cardiac weakness, with or without dropsy, unless the diastolic pressure is very high, digitalis is valuable If there is no cardiac dropsy, but other symptoms of heart tire are manifest and the blood pressure is high, the nitrites are valuable The amount should be sufficient to lower the blood pressure Sometimes the diastolic pressure is high and the systolic low and the pressure pulse small because of heart insufficiency, such a condition is often improved by digitalis In other words, with a failing heart digitalis may not make a blood pressure higher, and often does not, it may even lower a diastolic pressure, and the moment that the pressure pulse becomes sufficient, the patient improves Under this treatment of digitalis, rest and regulated diet, a dilated left ventricle with a systolic mitral blow often becomes contracted and this regurgitation disappears

The amount of digitalis that is advisable has been frequently discussed It should be given in the best preparation obtainable, and should be pushed gradually (not suddenly) to the point of full physiologic activity While it may be given at first three times a day in smaller doses, it later should be given but twice a day, and still later once a day, in a dose sufficient to cause the results As soon as the full activity has been reached it may be intermitted for a short time, or it may be given a longer time in smaller dosage In renal insufficiency associated with cardiac insufficiency, its action is subject to careful watching If there is marked advanced interstitial nephritis, digitalis may not work satisfactorily and must be used with caution It, on the other hand, a large part of the kidney trouble is due to the passive congestion caused by circulatory weakness, digitalis will be valuable

In sudden cardiac insufficiency, provided digitalis has not been given in large doses a short time before, strophanthin may be given intravenously once or at most twice at twenty-four-hour intervals

If, in this more or less serious condition of the heart weakness, there is great sleeplessness, a hypnotic must sometimes be given, and the safest hypnotic is perhaps ⅒ grain of morphin One of the synthetic hypnotics, where the dose required is small, may be used a few times, and even a small dose of chloral should not be feared when sleep is a necessity and large doses of synthetics are inadvisable on account of the condition of the kidneys

The value of the Nauheim baths with sodium chlorid and carbonic acid gas still depends on the individual and the way that they are applied If the blood pressure is low and the circulation at the periphery is poor, they bring the blood to the surface, dilating the peripheral vessels, and relieving the congestion of the inner organs and abdominal vessels, and they often will slow the pulse and the patient feels improved If they are used warm, a high blood pressure may not be raised, if the baths are cool, the blood pressure will ordinarily be raised Provided the patient is not greatly disturbed or exhausted by getting into and out of the bath, even a patient with cardiac dilatation may get some benefit from such a bath, as there is no question, in such a condition, that anything which brings the blood to the muscles and skin relieves the passive internal congestion Sometimes these baths increase the kidney excretion At other times these, or any tub baths, are contraindicated by the exertion and exhaustion they cause the patient, and cool Nauheim baths, or any other kind of baths, are inadvisable with high blood pressure

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies"

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council

W A Puckner, Secretary

MERCURIAL OIL —Grey Oil —A mixture containing from 40 to 50 per cent metallic mercury in an oily base containing the mercury in a finely divided state and of a consistence which permits its intramuscular injection by means of a proper syringe at room temperature

Action and Uses—Mercurial oil is used by intramuscular injection as a means of obtaining the systemic effects of mercury It is believed by some that the rate of absorption is influenced by the size of the mercury globules, hence the degree of subdivision should be indicated for each brand of this product

Dosage—Depending on the effects desired, the mercurial oil is administered once or twice a week, 0 06 Cc (1 minim being the initial dose and 0 12 Cc (2 minims) the maximum The 'course' should not be continued beyond five or six weeks without an intermission of equal duration It is reported that cumulative effects are prone to develop from the use of mercurial oil Idiosyncrasy should be considered and salivation must be carefully watched for Tenderness of the gums (the earliest sign of salivation) is an indication for stopping the use of the drug for a period

In mercurial oil the globules of mercury tend to coalesce and form larger globules and when this process is once started it progresses very rapidly Mercurial oil should be kept at a relatively constant temperature and must not be warmed prior to use

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Liquid petrolatum Squibb Heavy (Californian) is colorless non fluorescent practically odorless and tasteless Specific gravity 0 886 to 0 892 at 15 C or 0 881 to 0 887 at 25 C It complies with the tests of the U S Pharmacopeia and in addition to the following test

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E R Squibb and Sons New York

THROMBOPLASTIN-SQUIBB —A solution of brain extract complying with the standards for solution brain extract N N R (The Journal A M A Aug 5 1916 p 437) It is claimed that no loss of potency could be detected in a specimen of thromboplastin-Squibb over eighteen months old Marketed in 20 Cc vials

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SATURDAY, SEPTEMBER 23, 1916

THE INNERVATION OF THE THYROID GLAND

Despite the universally admitted importance of the so-called ductless or endocrine glands, in the normal and abnormal performances of the organism, it must be frankly admitted that the methods of ascertaining their precise function have been anything but satisfactory The necessity of a structure like the suprarenal gland for the very existence of the individual is attested by the abundant evidence derived from extirpation experiments The indispensability of the parathyroid structures is similarly attested, and the profound physiologic upset obviously associated with some malfunctions of the thyroid tissue likewise bears witness of a dominant rôle played by the endocrine organs Such knowledge, however, is far from furnishing the key to the more precise ways in which they act and enabling one to interpret the mechanism represented in the customary activities of indispensable tissues We may now make correct statements regarding epinephrin and its discharge from the suprarenals, and we may discuss the varying content of iodin in thyroid glands under differing environmental or individual conditions, but these are not explanations of what happens in the intact organism when the structures here referred to perform in their characteristic way When the salivary glands or the kidneys function, their work can be ascertained by an examination of a direct external secretion The inability to do the same for the endocrine glands has retarded progress in their study, but has at the same time stimulated a lively interest in the problems which they offer

Long ago it was demonstrated that just as alterations in electrical potential can be observed in muscles and nerves, as an accompaniment of physiologic action, so there are electrical changes discoverable during the secretion by the salivary glands It has remained for Cannon and Cattell,[1] of the Laboratory of Physiology in the Harvard Medical School, to test the validity of the electrical response as an index of glandular action, and to apply this method of study to the glands of internal secretion where the recognition of the product of their secretory activity in the blood or lymph is uncertain or impossible Because an electrical change accompanies the secretion of saliva, even though the blood supply is shut off from the gland or the flow through the duct is stopped, and because the change is absent when secretion is absent, although each of the conditions attendant on secretion (such as contraction and relaxation of blood vessels and faster or slower flow of blood) may severally be induced, the Harvard investigators have concluded that the electrical change is a manifestation solely of the process of secretion It is well known that both the chorda tympani nerve and the sympathetic system operate on the salivary glands In accord with this is the fact that when the "action current" indicates a maximal activity of the submaxillary gland excited by stimulating the sympathetic nerve in the neck, the electrical response can be augmented by stimulating the chorda tympani, and vice versa

Obviously, as Cannon and Cattell clearly admit, an electrical change cannot yield information as to the nature of the materials elaborated in the several structures involved, it cannot determine the course which the products of secretion actually take in passing from their region of origin Indeed, it might leave somewhat uncertain whether secretion or preparation for secretion were the process occurring in a gland at any given period of disturbed potential Nevertheless, the method, by revealing the differences between relative quiet and activity, indicates conditions which affect the functioning of glands and thus suggest more definite studies, it may show the quickness, the extent and, roughly, the degree of the response, and it may disclose significant new facts regarding relations which exist among the glands and which are mediated by the circulation

The best warrant for the further employment of such an indirect method in the study of the ductless glands is afforded by what Cannon and Cattell[2] have already accomplished with it If the thyroid gland and neighboring indifferent tissue are connected through a galvanometer, stimulation of the sympathetic strand high in the thorax evokes an action current after a latent period varying usually between five and seven seconds This effect persists after the superior and the recurrent laryngeal nerves are severed Evidence is presented that the impulses pass to outlying neurons whose cell bodies are located close below the superior cervical ganglion and also in the inferior cervical region Stimulation of the main trunk of the vagus nerve or injection of pilocarpin has no effect in producing an action current in the thyroid gland The influences of sympathetic impulses are not indirect through local anemia of the gland, for when the blood supply is wholly stopped by clamping the blood vessels for a period equal to that of the sympathetic stimulation no noteworthy electrical change is produced The conclusion is accordingly drawn that the nonmedullated nerves distributed to the thyroid cells belong to the sympathetic and not to the vagus supply, and that their effects are not indirect through alterations of the blood flow, they are, indeed, true secretory nerves

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[1] Cannon, W B, and Cattell, McKeen Studies on the Conditions of Activity in Endocrine Glands, I, The Electrical Response as an Index of Glandular Action, Am Jour Physiol, 1916, xli, 39

[2] Cannon, W B, and Cattell, McKeen Studies on the Conditions of Activity in Endocrine Glands, II, The Secretory Innervation of the Thyroid Gland, Am Jour Physiol, 1916, xli, 58, III, The Influence of the Adrenal Secretion on the Thyroid, ibid, 1916, xli, 74

The foregoing studies conform with what is indicated by other types of evidence regarding innervation of the thyroid gland From analogy with other glands one would expect the thyroid likewise to be provided with suitable nervous structures adapted to call its functions into activity Histologic evidence actually indicates the entrance of nerve fibers into the cells of this gland, and anatomists have reported that the fibers arise in the cervical sympathetic ganglia It is known that severance of its cervical sympathetic nerves causes atrophy of the thyroid and stimulation of these nerves causes a diminished iodin content of the gland Severance of the vagus nerve supply has no such effect The consensus of evidence, new and old, thus points toward a definite influence of sympathetic impulses over thyroid activity For many reasons, both theoretical and practical, this is an important acquisition to our knowledge of the innervation of the endocrine gland

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MUNICIPAL CONTROL OF FOOD MATERIALS

Civic problems of health come up for solution one after another as cities grow in size and knowledge of sanitary science increases Interferences with personal liberty for health reasons, which would have seemed quite preposterous a generation or two ago, especially in our Anglo-Saxon civilization, are now accepted as a matter of course, and undoubtedly similar developments will continue A century ago, municipalities began to realize the public duty as to the disposal of sewage and waste materials Then came the recognition of the necessity for affording an abundant and pure water supply More recently the necessity for milk inspection and for the care of the food, which means so much for that portion of the community most liable to disease, the very young, came up for consideration Naturally, after that the questions relating to the control of the food supply of adults, to such an extent at least as to prevent disease, were taken up This represents, doubtless, the most important question now occupying the minds of sanitarians, the practical application of which to municipal affairs will do a great deal to prevent the occurrence of many of the intestinal affections at least but probably of most others also which still flourish in large cities

Proper municipal food control and inspection will involve many invasions of what have been considered precious privileges of personal liberty, but it will not be long before it will be recognized that these, like other developments of municipal health service, are amply justified by the favorable results in health and the prevention of disease which they assure In its twelfth report, the Henry Phipps Institute of Philadelphia calls particular attention to the abuses which exist in that city and to the necessity of definite amelioration of conditions in the sale, storage and handling of food, if the spread of disease is to be prevented What is true of Philadelphia is exemplified also in the provision of food for many other American cities, in some of which, undoubtedly, conditions are even worse than in the Quaker City In a number of large cities recently the investigation of restaurants showed that there were many details in the handling of food which were insanitary and would surely have occasioned vigorous protest on the part of patrons had they been aware of the facts Indeed, it is extremely easy for most people to slip into serious abuses in the handling of food, whenever it is not to be prepared for themselves or those in whom they are particularly interested

The Phipps Institute report calls attention particularly to the exposure of food products to dust and dirt as well as to contamination from the unclean hands of sellers and customers, from contact with the clothing of passers-by, and occasionally even soiling by passing animals Curiously enough, municipal markets in Philadelphia were found to be the worst in this regard, and "vegetables were often piled directly upon the ground, and dressed fowl hung along the edges of the market, directly over filthy gutters and so low that people entering the market constantly brush against them Dogs and cats have easy access, in fact there is no way to keep them out and much to attract them" In one stall where the proprietor said that he had government, state and municipal inspection, there was "a huge piece of beef, soft to the point of sponginess, terribly discolored, part of it slimy and part entirely dried up" The man assured the investigator that "this would not be sold to his customers, but was shortly to be called for by a Bologna sausage maker" This, certainly, would not encourage any one to buy Bologna sausage anywhere in the neighborhood of that market The bureau of health in Philadelphia refused to license these stalls, yet they continue in business

Above all, sellers of vegetables and meat food seem to have no hesitation in handling food materials to any extent Some handling is necessary, but a great deal of the mussing with foods is quite unnecessary Many of the moist food materials, meats, butter and cheese, as well as milk, readily become infected with anything that is on the hands of sellers, and yet few precautions are taken to avoid what may be serious consequences from this The Phipps report points out particularly the need of assurance that food handlers are not typhoid carriers and are not at the time suffering from any of the intestinal diseases or tuberculosis The determination of such questions seems, to many, an almost unwarranted invasion of personal rights, and yet it represents the next development in public sanitation if there is to be definite assurance against the spread of these infectious diseases

Manifestly a campaign of education of the general public and above all of legislatures is needed in order to secure such developments of sanitary legislation as will bring all food handlers properly under the control of health authorities There is no doubt that cooks, kitchen workers and waiters, particularly in hotels and large restaurants, who are brought intimately in contact with food materials ought to have certificates that they are not carriers of typhoid or paratyphoid diseases and that they are not liable to be sources of infection because of the presence of other affections, intestinal or respiratory, in an active stage

THE LIPOIDS ("FATS") OF HUMAN BLOOD

The center of analytic interest in both normal and pathologic metabolism, as The Journal has frequently stated, is shifting from the urine to the blood A decade ago the withdrawal of a few cubic centimeters of blood from the vein of a human patient for purely diagnostic purposes was a somewhat formidable and certainly a decidedly uncommon procedure, today the collection of blood samples in man is a routine practice Pathology, bacteriology and physiologic chemistry all have benefited by the accumulating data derived from such technical analyses of the blood Information has been obtained of unquestioned importance in the domains of therapy and prognosis as well as diagnosis It is no longer bewildering to an up-to-date physician to discuss the content of sugar, or uric acid, or nonprotein nitrogen in the blood, any more than it was either to consider comparable statistics about the urine a few years ago or to take guidance from a blood count or hemoglobin estimation

Regarding the blood cells or formed elements, the oxygen-carrying blood pigment, certain immunologic components such as exemplify themselves in the Wassermann and other blood tests, and the sugar and nitrogenous constituents of the circulating blood, it can justly be said that quite satisfactory methods of clinical estimation as well as illuminating statistics are now available One already hears of prognoses made in nephritis on the basis of the finds of a chemical examination of the blood[1] At length the fatty components of the blood are also destined to receive a share of the attention of the clinical chemist

It is a sign of more orderly knowledge in any field when questions of nomenclature begin to arise The word "blood fat" no longer suffices to define the heterogeneous group of substances that have been included traditionally in that designation Those substances, present in blood, which were originally grouped together because of their similar solubility in fat solvents, include the true fats — glycerids of the fatty acids, the phosphatids — lecithin, cephalin, etc — ordinarily termed "lecithin", and the higher alcohol cholesterol with its fatty acid esters Bloor[2] has pointed out a possible natural propriety in the conventional grouping of the substances referred to under a common designation, in that they are quite probably all concerned in fat metabolism For this reason he proposes to use the expression "lipoid" as a general term for all those substances connected with the metabolism of the fatty acids, including the fatty acids, their naturally occurring compounds, and such substances as cholesterol, which occur naturally in combination with fatty acids and are therefore presumably connected with their metabolism The term "lipin," introduced by Gies to cover such groups, has found a limited acceptance

Bloor[2] has applied the methods of lipoid estimation, which he has materially helped to perfect, to the complete analysis of the blood of a large number of both healthy and diseased persons He furnishes some normal statistics on the basis of which deductions can be made in the future in evaluating analytic data that may be obtained from patients According to his investigations at the Harvard Medical School, in normal blood the "lecithin" lipoid fraction of the corpuscles is found to be approximately double that of the plasma, while the cholesterol and "total fatty acid" values are always lower in the corpuscles than in the plasma The value for "lecithin" in the corpuscles is generally about twice that of cholesterol, while in the plasma their values are nearly equal The ratio between these constituents — "lecithin" and cholesterol — is quite constant in normal blood, especially in plasma, and remains so in most pathologic samples This suggests to Bloor a definite relationship between these constituents, making it probable that cholesterol, perhaps as its esters, plays a part in fat metabolism Conclusions of this sort apply, of course, only to analyses made on blood taken at a time (before breakfast) when the lipoid content in the circulation is not altered by products of absorption Under such conditions the amount of true fats, that is, glycerids of fatty acids, in normal plasma is small, and in the corpuscles it may be absent entirely

The importance of the complete lipoid analysis of the blood in investigating abnormal conditions is emphasized by Bloor's announcement that whereas what is ordinarily termed "fat" (total ether-soluble substance) is within normal limits in most patients, the blood lipoids far more frequently exhibit an apparent deviation from their usual concentration Quoting Bloor, interpretation, the most characteristic feature of pathologic conditions in human beings is the increase of "total fatty acids" and true "fats" in both plasma and corpuscles, and the decrease of "lecithin" in the plasma Inasmuch as the "fat" is probably to be regarded as the inactive form of the body lipoids, the form in which they are stored — the raw material of fat metabolism — and the "lecithin" as the first step in its utilization,[3] an undue accumulation of "fat" or a decreased value of "lecithin" probably indicates a diminished activity of the fat metabolism The ratio of lecithin to cholesterol is almost always a constant one

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[1] The Value of Est ations of Creatinin in the Blood, Current Comment, The Journal M A, Feb 5, 1916, p 433

[2] Bloor, W R The Distribution of the Lipoids ("Fat") in Human Blood, Jour Biol Chem, 1916, xxv, 577

In severe diabetes (for which lipemia has often been described) the blood lipoids are greatly increased, but the ratios between these constituents are practically normal The low values for cholesterol found by Bloor in the plasma in anemia are suggestive in view of the antihemolytic effects attributed to cholesterol Likewise of interest are low values for the phosphatids in the plasma of hemophilia, for Howell has pointed out that the phosphatid cephalin is associated with blood coagulation, and the injection of cephalin into the circulation or its application to bleeding surfaces is known to give evidence of a clot-promoting potency[4] These examples suffice to indicate the promise of helpfulness given by the latest applications of lipoid analysis to the blood

ADVERTISING THAT MAKES FOR ILL-HEALTH

One phase of the problem of "patent medicine" advertising is frequently lost sight of The modern advertiser, in any line, is not so much concerned with letting the public know that he can supply what it legitimately demands, as he is in creating an artificial demand which he hopes to supply As an advertising concern in Chicago says, in a circular letter sent to prospective clients

> "It would be a liberal estimate to say that only 25 per cent of the business transacted in this country each day is done as the result of a natural demand' The other 75 per cent is done as a result of salesmanship in one form or another—and it s on the 75 per cent that we make our living and you make yours '

This, we believe, is no exaggeration It means, in other words, that three fourths of the things purchased are bought not because the public normally wants them, but because, through skilful advertising, the public has been hypnotized into believing it wants them It may be that in many lines of business this is legitimate At any rate, it is conceivable that some reasonably convincing arguments might be made in favor of it But in the matter of selling drugs for the self-treatment of ailments, such artificially created demands are not legitimate They are directly against public interest because they are a menace to the public health

The real object of "patent medicine" advertising — as all "patent medicine" advertisers know, although few will admit it — is not the simple one of telling the public what goods there are for sale It has a much more subtle motive Its real intent is to convince those who read the advertisement that they are suffering from certain ailments which can be cured by the preparation advertised One "patent medicine" maker who was urging druggists to stock his "cure" for appendicitis, and presumably thought that he could be frank about it, said that unless his product was put on the shelf the druggist would have nothing to sell "to the man who has appendicitis nor to the vast multitude who THINK they have or are going to have this dread disease" Elaborating, the manufacturer reminded the druggist further, that "fully seventy-five per cent of all cough and kidney remedies are bought by people who THINK they have consumption or some serious kidney ailment and not by people who actually have them" That's it exactly! And it is the business of the "patent medicine" advertisement to play on the fears of those who are temporarily indisposed and make them think that they have this, that or the other disease which can surely be cured by Dr Quack's Panacea

What, then, is the remedy? That no medicine should be sold for the self-treatment of ailments? By no means Were we living under ideal economic conditions, it might be as feasible as it may be theoretically desirable, that expert advice and opinion should be sought whenever anything went wrong with the human machine Under present economic conditions, however, such a conception is Utopian It is unthinkable that the average man is going to seek a physician's aid every time he becomes constipated Instead, he is going to purchase a laxative medicine of some sort It may be admitted, then, that there is today a legitimate place on the market for home remedies for the self-treatment of simple ailments All that has been asked in the interest of public health and safety is that these remedies be sold under no misleading claims, that they contain no dangerous or habit-forming drugs, and that the names and amount of the active ingredients therein be declared on the label

The public has a further right in the *premises*, although it has not awakened to this fact It is justified in demanding that such remedies shall not be so advertised as to make for ill-health "Patent medicine" advertising has for years been a stench in the nostrils of thinking men, lay and medical It has been the black beast of the advertising world Every effort made by decent advertisers in other lines of endeavor toward purifying the advertising field has had first to be directed against the "patent medicine" business Yet, from the point of view of the public health, the advertising of home remedies, instead of being the most exaggerated, the most suggestive and the most fraudulent, should, on the contrary, be even more conservative and respectable than the advertising of the ordinary products of commerce It may or may not be a bad thing for the community, economically speaking, if the public is led, through skilful advertising, to buy more hats, more pianos or more automobiles than it can really afford or has any legitimate use for But it requires no argument to prove that advertising which makes a well man think he is sick and a sick man think he is *very sick,* with the object in view of making these men drug themselves unnecessarily, is a crime against the public health

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[3] Bloor W R Jour Biol Chem 1916 xxvii 447 Pure Lecithin editorial THE JOURNAL A. M A April 1 1916 p 1029

[4] Howell W H Am Jour Physiol 1912 1913, xxxi 1 Hurwitz S H and Lucas W P A Study of the Blood in Hemophilia Arch Int Med April 1916 p 543

AN ASSAULT ON THE HARRISON NARCOTIC LAW

That he may have a physician's prescription calling for one-quarter grain of morphin sulphate in a two ounce mixture refilled as many times as may be found necessary for medicinal purposes, and not be compelled to obtain a new prescription each time he desires a new supply, one Ashley of Washington, D C, has filed a petition in the Supreme Court of the District of Columbia to compel the secretary of the treasury and the commissioner of internal revenue to abrogate certain treasury decisions under the Harrison Narcotic Law that run counter to his wishes The petitioner sets forth that he is a poor man, suffering from a serious and stubborn cough, which has been troubling him for some time, and that he cannot afford to pay for having the prescription rewritten and has had to stop taking the medicine Strangely there is nothing in the petition to gratify a natural curiosity as to the relative cost of having the prescription rewritten — provided there would be any additional cost, which is doubtful — as compared with the cost of contesting the issue with the secretary of the treasury and the commissioner of internal revenue, nor does the petition disclose what the petitioner is going to do for his serious and stubborn cough while waiting for the case to be settled

The poor man s leading counsel is Eugene C Brokmeyer, who, we understand, has been and probably still is attorney for the Coca-Cola Company Mr Brokmeyer is also the attorney for the National Association of Retail Druggists and is Washington correspondent for the official organ of the organization—the *N A R D Journal* Section 6 of the Harrison Narcotic Law is a "joker" which exempts from the operation of the act "patent medicines" containing narcotics within certain amounts Tacked on to Section 6 is a further "joker" which exempts from the provisions of the act "decocainized coca leaves or preparations made therefrom" and "other preparations of coca leaves which do not contain cocain " This last joker is said to have been fathered by Attorney Brokmeyer and its apparent object is to permit the use of what the Coca-Cola concern calls its "Merchandise No 5" in preparing its "soft drink "

Section 6 of the Harrison Narcotic Law permits "patent medicine" makers and others to sell narcotics indiscriminately provided these narcotics are in preparations or remedies containing not more than one fourth of a grain of morphin to the fluidounce or containing other of the forbidden drugs in certain tolerated degrees of dilution

The commissioner of internal revenue, with the approval of the secretary of the treasury, ruled that narcotic drugs dispensed under and in pursuance of a written prescription, no matter how diluted or attenuated they may be, do not come within the exemptions laid down in Section 6 of the law, and that such prescriptions cannot be refilled An exception is made, however, with respect to such prescriptions as call merely for preparations and remedies that are themselves clearly within the scope of the exempting section, and in such cases, as the preparation or remedy might have been sold without a prescription even in the first instance, refilling of the prescription is allowed

The petitioner in the present case tells the court that under the commissioner's ruling a person must consult his physician and obtain a new prescription every time he desires to have a prescribed narcotic mixture renewed, unless it be merely a ready-made compound with the exemptions established by Section 6 The petitioner is of the opinion that the decision discriminates in favor of the physician and against the poor man, who, he alleges, is compelled to pay the physician every time he desires a new supply of any prescribed narcotic mixture

The Journal believes that the commissioner's ruling putting certain restrictions on the prescribing of narcotics by physicians, no matter in what degree of attenuation, is a sound one and in the interest of public health and safety But The Journal also believes that Section 6 is *wholly and indefensibly pernicious* It is true that the commissioner's ruling seems illogical when viewed in the light of the exemptions granted by Section 6 But that is the fault of the viciousness of the Section and is not due to any lack of foresight or wisdom on the part of the commissioner It remains to be seen if, in the present suit, the court will uphold a ruling which is patently in the interest of public health and safety in spite of the fact that it is at cross purposes with a "joker" put in the same act by Congress, probably without realizing that it was in behalf of the "patent medicine" interests

Priority in Scientific Work—The international zoologic congresses have adopted as their regulation on this subject that scientific priority does not date from the day when an oral communication is made to some society, or a MS or drawings presented, but dates from the day when the printed work has been effectively published, that is, its distribution started, so that those interested can take cognizance of it

Current Comment

THE PHOSPHORUS COMPOUNDS IN BLOOD SERUM

Along with the increasing knowledge of the detailed composition of the blood, and the possible significance of quantitative variations of the normal constituents,[1] has come a desire to make our information in this field as complete as possible For this reason we refer here to a recent investigation by Greenwald[2] at the Harriman Research Laboratory, New York, on the nature of the phosphorus compounds of the serum As an illustration of the significance which such a factor may assume, one recalls the recent work of Howland and his associates at the Johns Hopkins University, indicating that certain types of acidosis, particularly in children, depend very considerably on the failure of the kidneys to eliminate the phosphoric acid formed in metabolism, and its consequent accumulation in the blood Phosphorus may likewise be present in blood in the guise of the phosphatids lecithin and cephalin, compounds which belong to the class of lipoids Lecithin has been associated with all manner of reactions and processes, and is particularly conspicuous in nervous matter, while cephalin has been shown of late to play a facilitating part in blood coagulation as a thromboplastic substance Greenwald[2] has found that the phosphorus compounds of serum consist almost exclusively of the phosphorus-containing lipoids — the phospholipins, as he terms them, following the nomenclature suggested by Gies — and inorganic phosphate Traces of other forms of phosphorus compounds may be present, but the essential content of phosphorus is found in substances of the types mentioned For all of them satisfactory analytic methods of estimation are now available[3]

HYPERGLYCEMIA AND KIDNEY PERMEABILITY AFTER SURGICAL ANESTHESIA

The maintenance of surgical anesthesia seems to be attended with an increase in the sugar content of the blood The percentage of sugar in the circulating fluid of the body may be more than doubled in the course of a comparatively brief surgical procedure, and the conditions which thereby arise in the blood are such as would lead one to expect an attendant excretion of sugar through the kidneys A content of more than 0 2 per cent of blood sugar is not an infrequent observation in the surgical clinics at the end of an operation[1] This is a condition not unlike that which attends the genesis of glycosuria in the diabetic, yet sugar occurs only occasionally in the urine after operation, about one in fifty cases showing traces[1] If the observed hyperglycemia represents an actual increase in the amount of sugar in the blood, why does glycosuria fail to develop after surgical anesthesia although it makes its appearance at many other times? An explanation of this seeming contradiction has been furnished by the observations of Epstein, Reiss and Branower[2] at the pathologic department of Mount Sinai Hospital, New York Selecting cases representing simple surgical conditions in which no evidence of renal disease could be found, they compared the functional capacity of the kidneys before and after operations One of the effects of the surgical procedures common to all the cases studied was a marked diminution in the amount of urine secreted This is believed to be due undoubtedly in part to the withholding of food from the patient prior to the operation, and to the loss of fluid from the body by sweating during the operation Postoperative vomiting may also contribute to the loss of fluid In any event, however, there was a uniform delay in the time of the appearance of phenolsulphonephthalein—the dye used in testing renal function—and a decrease in the amount excreted In some cases the reduction was very striking The quantitative decrease after operation ranges from 12 to 73 per cent, the average being about 25 per cent The New York investigators thus correlate operative procedures under anesthesia not only with an increase in blood sugar content (a hyperglycemia), but also with a reduction or impairment of renal function From this it is concluded that diminished permeability of the kidneys is responsible for the infrequent elimination of sugar after operations under circulatory conditions in which glycosuria might be expected

THE SOLUBILITY OF URIC ACID IN URINE

The marked variations in the apparent solvent power of different normal human urines for uric acid has for many years furnished a puzzle to those interested in the biochemistry of the subject Obviously the total output of uric acid in a given period — a factor dependent in turn on the character of the diet in respect to the abundance or paucity of purin-yielding foods — plays some part in the ability of a given volume of urine to dissolve this compound Quite aside from this quantitative aspect, however, it has long been apparent that the tendency for urates or uric acid itself to separate as a sediment out of secreted urine is dependent on something further than the total quantities of this purin derivative to be dissolved It has become more evident in recent years that the reaction of the urine takes a dominant place in the establishment of conditions favoring or opposing solubility, as the case may be The researches of Hindhede[1] and of Blatherwick[2] in particular have indicated how variations in the intake of acid or base producing components of the diet may lead to corresponding changes in the reaction of the urine and its consequent solvent power for uric acid It would be helpful as well as interesting to discover all of the main factors on which the uric acid dissolving power of the urine depends, so as to be able on the basis of certain data to foretell approximately how much uric acid would be dissolved by a particular urine Studies by Haskins[3] have furnished at least a partial solution According to him, and in confirmation of other observers, some urines that are slightly acid and all those that are neutral or alkaline dissolve extra uric acid On the other hand, Haskins has found that the solvent power of urines of ordinary concentration is distinctly increased by dilution For instance, the total uric acid dissolved by 100 c c of urine after being diluted with 300 c c of distilled water may be even twice as much as that dissolved by 10 c c of the undiluted urine Otherwise expressed, dilute urines, when considered in proportion to their concentration, show much greater solvent power than less dilute urines Sometimes urines show signs of apparent supersaturation with uric acid They dissolve so much of the substance that they come to contain more than is present in a saturated solution of monosodium urate Urines passed after sodium bicarbonate or citrate has been taken may behave in this way Haskins inclines to the belief, already intimated by others, that in all probability, in these cases at least, part of the uric acid is in colloidal solution in a form "stabilized," it may be, by colloids in the urine

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[1] Compare The Lipoids (Fats) of Human Blood editorial this issue p 956

[2] Greenwald, I The Nature of the Acid Soluble Phosphorus of Serum Jour Biol Chem 1916, xxi 431

[3] Greenwald I Jour Biol Chem 1913 xiv 369 ibid 1915 xxi, 29 Am Jour Med Sc 1914 cxlviii 225 Jour Biol Chem 1916 xxv 431 Howland J Haessler F H and Marriott W McKim Jour Biol Chem 1916 xxiv 18 Bloor W Jour Biol Chem 1915 xxii 133 ibid 1916, xxiv 447 ibid xxi 577

[1] Epstein A A and Aschner P W Jour Biol Chem 1916 xxv 151

[2] Epstein A A Reiss Joseph and Branower Jacob The Effect of Surgical Procedures on Blood Sugar and Renal Permeability Jour Biol Chem 1916 xxvi 25

[1] Hindhede M Skand Arch f Physiol 1912 xxvi 384

[2] Blatherwick N R The Specific Role of Foods in Relation to the Composition of the Urine Arch Int Med September 1914 p 409

EVEN THE EGGS MAY BE INFECTED

According to a Census Bureau estimate the egg industry furnishes an average of 210 eggs per year or 4 eggs per week for each person in the United States Their annual value at the point of production is over $300,000,000 These statistics explain the widespread interest in all facts pertaining to eggs either with respect to their production, marketing, or dietary uses Why a product so carefully packed away in a well lined shell should become infected and undergo deterioration so easily has been a puzzle to many persons It is not generally understood that a certain amount of bacterial infection may be found even in freshly laid eggs Of more than 2,500 fresh eggs examined at the Rhode Island Experiment Station over 8 per cent showed bacterial infection in the yolk[1] None of the whites examined showed infection The percentage of infection obtained for individual hens per year varied between 2 8 and 15, the average being 9 No hen laid all sterile eggs during any full year The percentage of infection for infertile and for fertilized eggs was essentially the same The invading organisms occurring included 40 bacterial types, among which were 11 cocci, 28 rods, and 1 spirillum The most probable source of primary egg infection is the ovaries of the fowl, which become infected by bacteria escaping through the intestinal wall into the portal circulation The nature of the bacterial species occurring in the primary infection makes clear the fact that primary infection plays no rôle in bringing about the decomposition of eggs For the factors determining this result we must look mainly to the secondary infections The nature and extent of the normal primary infection stands in no causal relation to embryo mortality in incubating eggs, and losses in "dead-in-shell" eggs can not be explained on these grounds

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

COLORADO

Sanatorium Opened—The new hospital building of the Modern Woodmen of America, Woodmen, was formally opened, September 16 A reception to physicians was held at 4 o'clock There was a clinic inspection an hour later, and at 7 o'clock the culinary department of the institution was inspected Dr James A Rutledge is medical director and superintendent of the institution

New State Society Officers—At the forty-sixth annual meeting of the Colorado State Medical Society, held in Glenwood Springs, the following officers were elected president, Dr Alexander C Magruder, Colorado Springs, vice president, Dr William W Frank, Glenwood Springs, and secretary, Dr Crum Epler, Pueblo (reelected) It was decided to hold the 1917 meeting in Colorado Springs

Personal—Dr John G Locke, Denver, was elected surgeon-general of the Conference of Foreign Wars of the United States at its annual meeting held in Chicago, August 17——Dr Leslie H Wade, formerly of Battle Creek, has been appointed a member of the Boulder Colorado Sanitarium——Dr Frank R Coffman, deputy city health commissioner of Denver, has resigned——Dr Crum Epler, Pueblo, secretary of the Colorado State Medical Society, is ill with diphtheria and under treatment at St Mary's Hospital

DISTRICT OF COLUMBIA

Poliomyelitis in the District—During the week ending September 16, no case of poliomyelitis was reported

Emergency Hospital Changes—Dr Harry S Lewis, superintendent of the Central Dispensary and Emergency Hospital for the past six years, has resigned, to take effect October 1 Dr Lewis will enter private practice——Dr A Magruder MacDonald of the house staff has been appointed medical director, to succeed Dr Lewis in the discharge of his medical duties It is planned to appoint an administrative officer to take over the business affairs of the institution

IDAHO

Change in Medical Board—Dr W F Pike, Twin Falls, has been appointed a member of the Idaho Board of Medical Examiners for a term of six years, succeeding Dr Clifford M Cline, Idaho Falls, resigned

ILLINOIS

Eugenic Law—State Senator Glackin is framing a bill providing for physical and mental tests of those who desire to marry The president of the Cook County board and Dr Adam Szwajkart, county physician, have promised their cooperation

Sanatorium Well Under Way—Progress on the Rock Island Municipal Sanatorium has been rapid, six tents have already been erected and four more will soon be ready The main building is being remodeled, a 12-foot veranda is being built entirely around the building, and a 30-foot section of the veranda is to be enclosed in glass, and the entire veranda screened——An open air school to accommodate forty pupils is being established by the Rockford Tuberculosis Sanatorium

Personal—Dr S Claude Andrus, Rockford, has been appointed local surgeon for the Burlington System, succeeding Dr William R Franklin, deceased——Dr John J

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[3] Haskins, H D The Uric Acid Solvent Power of Normal Urine, Jour Biol Chem, 1916, xxvi 205

[1] Hadley, P B, and Caldwell, Dorothy W The Bacterial Infection of Fresh Eggs, Rhode Island Experiment Station Bull, 1916, No 164, p 3

Rendleman, Cairo, was elected president of the Rendleman Family Reunion at the annual meeting of the family, at Alto Pass, September 10——Dr Austin J Brown, Vienna, who was shot in the head by Thomas Hester, September 1, is still under treatment at St Mary's Infirmary, Cairo, and is not materially improved The bullet penetrated the skull, and was removed from behind the right ear——Dr William G Hawkey, Belvidere, is a candidate for nomination as coroner of Boone County——Dr George M Manning, Garden Prairie, has sold his practice and will move to Kansas

Typhoid in Elgin—The inspector for the state board of health, after careful investigation of the typhoid situation in Elgin, states that since the last week in June, when the first case was reported, there have been eleven deaths from the disease and that at present there are 175 cases in the city, that the epidemic was due to pollution of the water supply, whose source is artesian springs, by infected water from the Fox River The Elgin Watch Company, as soon as it received information regarding the matter, took steps to correct the defect and also did everything possible for its employees, who were the principal sufferers It is said that the delay in taking measures to prevent the spread of the disease was due to the fact that the health officer, who is not a physician, failed to appreciate that the reports of cases which were sent to him were anything more than matters of routine Not until August did the condition receive attention, when Dr Alban L Mann, who is in charge of the city laboratory, discovered typhoid bacilli in a specimen sent to him for examination He immediately took steps to ascertain the cause and to limit the spread of the disease

Chicago

Hospital Fund Campaign—The Norwegian Lutheran Deaconess Home and Hospital announces that it will launch next month a twelve-day campaign to raise about $150,000 for the erection of a new five-story wing, and for a fifth story addition to the wing built in 1912

Tuberculosis Society Meeting—The twenty-first meeting of the Robert Koch Society for the Study of Tuberculosis will be held at 12 15 p m, September 28, in Parlor B, Hotel Morrison Dr Robert H Babcock will speak on "Some Points in Diagnosis and Management," and the president, Dr John Ritter, will discuss 'The Future of the Robert Koch Society"

Pupils as Health Officers—Health Commissioner Robertson has suggested to the president of the school board that a student be elected by and for each of the public schools, to act as a health commissioner and to cooperate with the principals teachers and the department of health in maintaining a neat, orderly and sanitary condition about the school and to supervise the distribution of health literature

Memorial for John B Murphy—The John B Murphy Memorial Association was incorporated in Springfield, September 19, by Drs William A. Evans, James E Keefe Allan B Kanavel, Frank H Martin and Frank Crozier The first step to be taken by the association is to raise half a million dollars, which it has been decided to expend on the memorial The two requisites of the memorial are said to be that it be permanent and that it be a "living power making for the advancement of surgery on both the scientific and moral sides"

KENTUCKY

Personal—Dr Thomas R Welch, Nicholasville, has been elected secretary of the state tuberculosis commission, succeeding Dr Col L Mervin Maus, M C U S Army, retired

Hospital Notes—The new Carroll County Infirmary, erected at a cost of $10 000 on the Carrollton-Owenton turnpike near Guerrant is completed and ready for equipment——The sanatorium of Dr Milton Board and the Louisville Neuropathic Sanatorium have consolidated, and will be under the charge of Dr William E. Gardner Dr Board who retires from the sanatorium, was recently appointed medical examiner of the workman's compensation commission

MAINE

Personal—Dr James F Faulkner, Gardiner, has returned after several months' service with the Second Harvard Surgical unit at the war front

Opposition to Medical Examiners' Bill.—The state association of county commissioners, at its recent meeting at Augusta, opposed the medical examiners' bill and suggested that if the law were appealed a statute should be substituted giving authority to sheriffs and local physicians to handle the cases which under the present law are in the care of the medical examiners

MARYLAND

Paper Cup Order Enforced—The order from the state board of health requiring soda water and other soft drinks to be sold in paper cups or sterilized glasses, also prohibiting the use of spoons that have not been sterilized, is in effect The penalty is a fine not exceeding $500 Inspectors are making a rigid investigation to see that the law is enforced

Personal—Dr William H Welch, head of the new Hygiene Institute at the Johns Hopkins Hospital, will leave England for home, September 20 Dr Welch left for England five weeks ago to obtain data in connection with the organization of the Hygiene Institute, which was made possible through a gift from the Rockefeller Foundation——Dr Alfred W Brown, medical superintendent of the Public Athletic League, Baltimore, for three years, has resigned and will practice in British Columbia

Public Health Service Aids in Infantile Paralysis Campaign—To prevent the spread of infantile paralysis, the United States Public Health Service has sent to Baltimore, at the request of the state and city health departments, Passed Asst Surg James R Hurley, Asst Surg C H Waring and seven scientific assistants Dr Hurley is in charge and has his headquarters at the health department It was stated at the public health service that the federal health experts do not regard the situation in Baltimore and Maryland as being critical, but they think it best to grant the request of the state and city authorities for a detail of federal experts to help them fight the malady before it gets a firm foothold There has been a decided increase in the number of patients reported this week and for this reason Health Commissioner John D Blake is undecided as to whether he will permit schools to open on September 25, as was decided on three weeks ago Dr Hurley has taken charge of the interstate travel phase of the situation, and has announced that no children under 16 years of age will be permitted to leave the city for points outside the state without the United States Public Health Service certificate In addition to issuing travel certificates, Dr Hurley has assistants at the railroad depots and steamboat wharves to look after through passenger traffic, and a careful watch is being made for persons evading quarantine restrictions by the use of automobiles There has also been a decided increase in the number of cases reported from the various counties throughout the state Sixty-seven positive cases have been reported in the city this year, practically all since July 1, and there have been twenty-seven deaths Thirty-eight patients are now under treatment, the majority being at the Children's Hospital School

MICHIGAN

Physician Wins Malpractice Suit.—A suit against Dr A M Wilkinson of Charlevoix to recover for alleged improper treatment of a severe burn of the hands of a 17 months old child, was tried in the circuit court last week and after three days, the jury brought in a verdict "no cause of action" This is the second time suit has been brought against Dr Wilkinson in this case The first suit was entered in the name of the father, but the plaintiff's expert refused to testify, the second was instituted in the name of the child with the father as the next friend

MISSOURI

Medical College Closed—It is reported that the Southwest School of Medicine and Hospital, organized last year following the closing of the Kansas City Hahnemann Medical College, has disposed of its equipment and will not be reopened

Personal—Dr Frederick B Kyger, chief of the inspection corps of the Kansas City public schools, resigned, September 5——Dr Edward F Higdon, Richmond, has been appointed assistant physician at State Hospital, No 2, St Joseph——Dr Daniel R Hill, physician for the Jasper County public health board has resigned the care of the clinic and free sanatorium in Webb City——Dr Floyd H Spencer, St Joseph, has been appointed acting coroner of Buchanan County——Dr William S Culpepper, Willow Springs, has been appointed division surgeon for the Frisco Railroad at Willow Springs, succeeding Dr Hilliard J Rowe

St. Louis

Waste Paper Sold for Tuberculosis Benefit—The St Louis Tuberculosis Society has collected and sold nearly 1,000,000 pounds of waste paper during the last six months

Personal—Dr Leon F Shackell of Washington University has been appointed an instructor in physiology at the University of Utah Medical School, Salt Lake City——Dr Fred B Abbott has returned after six months' experience on the war front in France as a member of the Harvard Surgical Unit——Dr James R Clemens has been elected dean of the John A Creighton Medical College, Omaha——Dr Cleveland H Shutt has been reappointed health commissioner of St Louis——Dr Scott Heuer sailed from New York, July 30, on the *Lafayette* to join the American Ambulance staff in Paris——Dr Charles L Wilson announces his retirement from the practice of medicine

NEBRASKA

State Secretaries Organized—At a meeting of the board of health secretaries, held at Lincoln recently, reorganization was effected, with the following officers president, Dr Charles T Burchard, Falls City (reelected), vice president, Dr Herschell B Cummins, Seward, secretary, Dr E Arthur Carr, Lincoln, and treasurer, Dr Lucien Stark, Hartington

St Joseph's Hospital Day—The Commercial Club of Alliance and the Box Butte County Medical Society united in securing a special attraction for the meeting of the society held in Alliance, September 15 The program was especially in honor of St Joseph's Hospital, Alliance, and included a luncheon given by the medical society and the Commercial Club, at which Dr Herbert A Copsey presided as toastmaster A public meeting was held in the afternoon at which John W Guthrie delivered an address on St Joseph's Hospital, and Dr Palmer Findley, Omaha, spoke on "The Popular Heroes of Medicine" A banquet was given by the hospital committee of the Alliance Commercial Club to the medical society and visiting physicians at which the oration in medicine was delivered by Dr Arthur D Dunn, Omaha, on "Syphilis in Relation to Internal Medicine," and the oration in surgery was given by Dr Palmer Findley on "The Cancer Problem, with Special Reference to Cancer of the Uterus"

NEW YORK

Personal—Dr Hermann M Biggs, state commissioner of health, was successfully operated on at Rochester, Minn, for chronic appendicitis and gallstones, September 14——Dr Charles W Pilgrim, superintendent of the Hudson River State Hospital, has been appointed president of the state lunacy commission

Paratyphoid at Camp Whitman—There are 4,500 men in quarantine at Camp Whitman There is one positive case of paratyphoid fever in the hospital of the Third Infantry, two others are thought to have the disease and there are seventeen suspects from the Fourteenth Infantry In order to make provision for the examination of the militiamen a laboratory unit of the state department of health has been established at the camp in cooperation with the army medical officers Dr Augustus B Downing, director of the laboratories of the department, is in charge General vaccination of the troops has been begun by a staff of twenty-two physicians

Physical Training Program Adopted—The state board of regents, while in session at Syracuse, gave its unanimous approval of the physical training program for the schools of the state, as recommended by the state military training commission This program calls for all the minimum time to be devoted to physical training in the schools which is prescribed by law, that is, an average of twenty minutes a day, or 100 minutes a week The general plan is the most comprehensive health education and physical training program ever adopted by a state A statement issued by the regents shows that every feature is already in successful operation in some of the most progressive schools of the state

New York City

Personal—Dr Arthur Ginnever has returned home after a two months' tour of inspection of the military hospitals in France in the interests of the British War Relief Association in this country——It is reported that Dr Joseph A Blake, formerly of this city, who is now head of the American Ambulance at Neuilly, is ill in the hospital——Dr Roy S McElwer has returned from Germany

Dental Schools Cons lidate—A plan has been adopted whereby the New York Sc ool of Dental Hygiene has become allied with the Columbia hool of Dentistry, recently established and affiliated with he College of Physicians and Surgeons The school will o n, September 27, in the Vanderbilt Dental Clinic The Rocke ller General Education Board has given the school of dentistry $2,500 The administrative boards of the two schools are practically identical

Infantile Paralysis—The reports of the health department for the week ending September 16 do not show the reduction in the number of cases of infantile paralysis that had been expected There were forty-one new cases reported on Friday and Saturday of this week, whereas earlier in the week the new cases averaged about thirty-one daily The total number of cases thus far since the outbreak of the epidemic is 8,731, with 2,172 deaths This increase in the number of cases has influenced the United States Public Health Service to continue its work of inspection of travel as long as present conditions continue——It is stated that public health officials are inclined to consider October 2 a safer date for opening schools than September 25——Fifty of the 100 monkeys brought from the Orient for research work in connection with the study of poliomyelitis are on their way from San Francisco to the Rockefeller Institute The remainder of the monkeys have died from lung trouble since arriving in this country

Sanitary Survey of Office Conditions—The August *Bulletin* of the department of health gives the results of a series of investigations of an office block in the downtown district of the city which was undertaken with the purpose of establishing certain facts regarding the conditions under which office employees are obliged to work in certain sections of this city All the details with reference to the construction and character of the buildings were recorded, the methods of ventilating, lighting, heating, cooling, cleaning, character of plumbing, kind of business carried on, number of employees, etc, were investigated, and account was taken of welfare, relief work and all conditions surrounding the workers which could be considered as giving data from which general conclusions could be drawn Among the most interesting points brought out were those regarding the character and quality of light and the amount of ventilation found The percentage of those using artificial light was found to be 85 33, while only 14 67 were using natural light It was found that much attention was bestowed on the esthetic effects in lighting and very little to the physiologic effects There was evidently no standard as to the quality or quantity of light furnished to employees The two greatest deficiencies were insufficient light and too much artificial light As to ventilation it was shown that there was quite a sufficient quantity of floor space available for ventilating, but that it was not in use About 18 6 per cent of the individuals in this block did not have a sufficient quantity of floor space allotted them The average temperature of the offices was found to be from 2 to 3 degrees too high, while the humidity showed an enormous reduction in comparison with that of the outside atmosphere The report states that there is no doubt that the rapid change from the conditions indoors to the outside is largely responsible for the prevalence of catarrhal conditions of the mucous membrane of the nasopharynx

NORTH DAKOTA

Bristol Resigns—Dr Leverett D Bristol, in charge of the state public health laboratory, Grand Forks, has resigned to accept a teaching position in the department of public health and preventive medicine at Harvard University He will also be a member of the staff of the Boston Dispensary

Hospital Notes—The Dunn County Hospital Association has been incorporated with the view of locating a hospital at Dunn Center to cost $50,000 It is proposed to immediately erect a temporary frame structure for present use and to proceed with the erection of the new hospital early in the spring——Plans for the new addition to the St Luke's Hospital, Fargo, are completed and the work of construction will begin shortly The new building is to be constructed in the rear of the present building, and will double the capacity of the institution

OHIO

Personal—Dr Robert G Paterson, Columbus, has resigned as director of the department for the study and prevention of tuberculosis for his old position as secretary of the Ohio State Society for the Cure and Prevention of Tuberculosis——Dr Diego Delfino, Alliance, has been ordered to report for service as surgeon in the Italian army——Dr Charles H Merz, has been elected president of the Erie County Automobile Club——Dr Erl A Baber has been appointed superintendent of the Dayton State Hospital——Dr Thomas A Dickey has been appointed president of the board of trustees of the Middleton Hospital

PENNSYLVANIA

New Hospital Opens—A new emergency hospital for the treatment of infantile paralysis has been opened in Rosemont It is to be conducted as an emergency ward of the Bryn Mawr Hospital and will be utilized for the treatment of infantile paralysis originating along the "Main Line" Dr Reynolds of the Bryn Mawr resident staff is in charge of the new institution

Personal—Dr Archibald W Dunn, Willow Grove, has been appointed professor of physiology and biology in the American College Peking, China——Dr Samuel A Lembach has been appointed president of the Quakertown Board of Health——Dr Charles E Roderick has resigned from the staff of the Hazleton State Hospital, to take charge of the new laboratories of the Florida State Board of Health at Tampa——Dr William B Beaumont has been appointed local surgeon for the Lehigh Valley Railroad at Laceyville

Philadelphia

Personal—Dr Alexander Johnson, for thirteen years secretary of the National Conference of Charities and Correction, has been selected as the expert for the Colorado State Survey Commission to investigate and make recommendations concerning the care of mental defectives and insane in the state, and the charities and corrections departments of the state ——Dr Julius E Foerenbach has been appointed assistant medical inspector

Campaign for Clean Streets—A campaign for cleaner streets is being urged by various medical societies, civic associations and business men s organizations throughout the city The Walnut Street Business Men s Association has recently joined in this general protest At a special meeting of this association September 14, the association urged the prosecution and fining of owners of unoccupied properties, particularly in the district bounded by Race and South streets and the Delaware and Schuylkill rivers

Food Vendors Fined—In the general health crusade for cleaner and better food which is being waged by the bureau of health and sanitation, vendors of fruit, cakes meats and vegetables who display their wares uncovered, an action violating the present laws, have been forced to display their goods either in glass cases or covered by netting Inspections are made by representatives of the health department daily throughout the city and a great many dealers who have not heeded the law have been fined Several were held under bail ranging from $400 to $600

Infantile Paralysis Decreasing—The epidemic of infantile paralysis which has been sweeping this section of the country shows an abatement in Philadelphia and Pennsylvania, and also in the neighboring cities Ten new cases with one death were reported in Philadelphia September 16 The new cases in the state outside of Philadelphia totaled nine, and the new cases recorded throughout the adjoining state of New Jersey, on September 16 aggregated thirty-three The total number of cases reported to the state health department on September 14 from July 1 was 1,231, 535 of these occurred outside of Philadelphia and during the period mentioned 305 deaths have occurred An additional appropriation of $70,000 to carry on the campaign against the disease will be asked for from councils by Director Krusen September 21 The director also makes an appeal for blood from persons who have had the disease A committee has taken in charge the work of raising funds to administer after-treatment to the victims of this malady One hundred patients are now being cared for by the Episcopal Hospital and the Wynnefield branch of the Children s Hospital The Jefferson Hospital has offered fifteen free beds, the Mary Drexel Home six the University of Pennsylvania Hospital, 14, and the Frankford Hospital six Thirty-six convalescents are now ready to leave the Municipal Hospital and receive this important after-care

CANADA

Personal.—Dr George D Porter Toronto was reelected secretary and Senator John W Daniel M D St John N B was reelected president of the Canadian Public Health Association at the annual meeting held in Quebec City, September 13 ard 14——Maj George T McKeough M D, Chatham Ont, has returned from England where he was a member of the medical boards at Folkestone and Bramshott——Capt J Harry McPhedran Toronto who has been appointed to the pension board under Lieut-Col P Walter McKeown Toronto is returning to Toronto on two months leave of absence

Tuberculosis Among Canadian Troops—The Dominion Hospitals Commission has arranged for a conference of experts on tuberculosis in Ottawa to deal with the question of tuberculosis among the Canadian troops Dr Alfred Thompson, M P, Yukon, the chief medical officer of the commission, is to be presiding officer, and those who have been called to the conference are Dr Edward R Baldwin, Saranac Lake, N Y, Dr Charles D Parfitt, Calydor Sanatarium, Gravenhurst, Ont, Dr Jabez H Elliott, Toronto, and Dr John R Byers, Ste Agathe-des-Monts, Que These experts will be asked to advise the commission regarding the location of sanatoriums, the most recent methods of treatment, diet and exercise, the maximum and minimum capacities of sanatoriums, as well as other questions pertaining to the disease There are already 370 tuberculous soldiers in the sanatoriums of the various provinces, and of these 175 have been overseas Of those who go overseas about thirty Canadians return to Canada every month affected with the disease,

The Returned Soldiers and Tuberculosis—The Canadian Hospitals Commission has presented reports bearing on the question of tuberculosis and other disease conditions in returned soldiers A deputation from the Muskoka institutions has waited on the commission and discussed with them the question of increased accommodation to take care of soldiers in those institutions The matter was left in the hands of the medical superintendent and to committees for Ontario and Quebec, which will call to their assistance certain experts in order that the commission may outline a definite policy which will deal permanently with the situation The present number of men, tuberculous patients, in the various sanatoriums in Canada is 370, of whom 175 have been returned from overseas With regard to the other institutions, the various convalescent homes, there are at present 368 overseas patients 269 nonoverseas, and from 700 to 900 outpatients who are receiving treatment According to the latest returns from the director of the medical service for Canada and England, there were, August 4, 12,900 Canadian inmates in Canadian and other hospitals, sixty-three being in special sanatoriums The percentage from loss or wastage has been reduced from about 80 per cent. to about 17 per cent This is said to have been brought about by a system of physical drill which has been established, and a similar system is now being established in the convalescent homes and hospitals in Canada, three being at present operating in Montreal, Kingston and London Negotiations are in progress whereby the new hospital for the insane at Whitby, Ont, may be handed over, by the Ontario government, for returned soldiers

University News—At a recent meeting of the governors of the University of Toronto, warm reference was made to the late Dr Thomas G Brodie professor of physiology, as "one of the leading experimental physiologists in the English speaking world ' Deep regret was also expressed at the great loss the university has sustained——The reduction in fees owing to about one half of the students having volunteered for overseas service, will result in the governors having to face for the past fiscal year a deficit of $130,000 The total annual budget of the university is about $900,000, and the greatest economy will be practiced in the ensuing year in order that the financial condition of the institution may be bettered——Great advances have been made in the facilities for students to follow postgraduate work and definite new groups and classes will be hereafter followed as in undergraduate work New fellowships have been added The value of each is $500 for one year with free tuition and these may be renewed for a year There are also special departmental fellowships in political science anatomy and medicine and also the American Alumni Research Fellowship——Patriotism has greatly affected the attendance in the past two years All the faculties however will continue work as usual during the session of 1916-1917, although the attendance at the university will be very much lower than heretofore In medicine the registrar s office reports many inquiries from prospective entrants The senior years in medicine have not been drawn on nearly so much as in other departments because a graduate is more to be desired than an undergraduate in war work——A new gymnasium has been completed during the past year, and a woman s residence and union have been acquired

GENERAL

Aid for Belgian Physicians—The report of the treasurer of the committee of American physicians for the aid of the

Belgian profession lists no contributions for the month of August

Previously reported receipts		$7,946 86
Previously reported disbursements		
1,625 standard boxes of food at $2 20	$3,575 00	
1,274 standard boxes of food at 2 30	2,930 20	
353 standard boxes of food at 2 28	804 84	
Total disbursements		7,310 04
Balance		$ 636 82

F F Simpson M D, Treasurer,
5 Jenkins Arcade Bldg, Pittsburgh

Bequests and Donations—The following bequests and donations have recently been announced

Home for Orphans and Friendless Children, Neffsville, Pa, $2,000, and Philadelphia Home for Incurables, $1,000, by the will of Mrs Mary S Geiger, Philadelphia

Brownsville (Pa) General Hospital, between $1,500 and $2,000, as the result of a tag day campaign, September 4

St Christopher's Hospital, Philadelphia, $2,500, Presbyterian Hospital, and Rush Home for Consumptives, each $5,000, by the will of Eugene I Sauter

St Christopher's Hospital, Philadelphia, for the endowment of a free bed, $5,000, and Philadelphia Day Nursery, $1,000, by the will of Theresa Scott

Prize Awarded Four Times to Lloyd—At the annual meeting of the American Pharmaceutical Association at Atlantic City during the week of September 4, the Ebert prize was awarded to Prof John Uri Lloyd for his discoveries in the colloidal precipitation of alkaloids by fuller's earth This prize is awarded by the association to the member who presented the most meritorious paper at the previous annual meeting Professor Lloyd has received this prize four times

Florida and Alabama Physicians to Meet—Physicians of West Florida and Southern Alabama will meet at the invitation of the Escambia County Medical Society at the state laboratory at Pensacola, October 25 and 26 On each day there will be a scientific session from 9 to 11 o'clock Clinics will be held from 11 to 1, and in the afternoon entertainments of various kinds will be provided by the hosts

Railroad Service Men's Meeting—The fourteenth annual meeting of the Pacific Railway Surgeons Association was held at the Palace Hotel, San Francisco, August 25 and 26, under the presidency of Dr Hiram W Fenner, Tucson, Ariz The following officers were elected president, Dr William T Cummins, San Francisco, vice presidents, Dr James A Ketcherside, Yuma, Ariz, and Alvin Powell, Oakland, Calif, secretary, Louis P Howe, San Francisco, and treasurer, Ernest M Keys, Alameda, Calif

Medical Association of the Southwest—The eleventh annual convention of this organization will be held in Fort Smith, Ark, on October 2, 3 and 4, under the presidency of Joseph D Brecton, Greenville, Texas Dr John Ridlon, Chicago, will conduct a clinic on congenital dislocation of the hip, and Fenton B Turck, New York, will demonstrate his work on diseases of the stomach The three divisions will be devoted to papers, discussions and clinics

WAR NOTES

Third Red Cross Unit Sails—Dr Daniel Fiske Jones, Boston, sailed for Liverpool, August 17, on the *Lapland* in charge of the third Harvard Red Cross Unit, twenty-two in number, who go to work in the British hospitals on the west front to replace the first and second army units

Work of Murphy Unit Completed—The hauling down of the American Flag, which marked the location of the field hospital established by the late Dr John B Murphy on the western front, is due, it is explained, to the fact that the work for which the hospital was established has been completed and that the surgeons and nurses have returned to America It has therefore been turned over to a staff of English surgeons and nurses

FOREIGN

Leprosy in Sardinia—A ward in the public hospital at Cagliari has been set apart for lepers with open lesions and when strict and certain isolation cannot be counted on at home The prefect ordered notification of every case of leprosy at whatever stage it may be, and the university clinic for skin diseases will then take necessary steps to isolate the patient if needed, with disinfection of the dwelling, periodical surveillance of the family and removal of the children from the close environment of the leper

Prize for Milk Container—According to the *Annali d'Igiene* of Palermo the local authorities at Bologna have offered a prize of 250 lire ($50) for a small glass container for milk to be delivered at the home and for a large metal container for milk in bulk The method of closing the containers must be economical, practical and hygienic, and offer the best guarantees against fraud

Deaths in the Profession Abroad—V Gilbert, a leading physician and sanitarian of Geneva, Switzerland For some years he had been chief of the medical staff connected with the federal railway system, president of the Societe medicale de Geneve, and author of numerous articles on autoserotherapy in pleurisy, on tuberculosis, etc He has had charge of the transportation and distribution of most of the disabled, sick and wounded soldiers sent to be interned in Switzerland ——A Charpentier, professor of medical physics at the University of Nancy, aged 64 His research and publications have been devoted almost exclusively to the physical and physiologic attributes of light Some of his works, notably, "Vision from the Standpoint of General Medicine," and instruments devised to facilitate his research were awarded prizes by French societies——Dr Tedeschi, physician in chief of the colonial forces in the French army

Russian Chemicals and Drugs—Professor Maecel Lauwick of Ghent University, Hon Secretary of the Societe d'Etudes Belgo-Russes, reports that many commercial organizations were founded in Russia last year for the manufacture of chemicals and drugs They were twenty in number, against sixteen in 1914, with a capital of $12,000,000, against $4,500,000 in 1914 Previous to the war the home production of benzol was only about 50,000 pounds (500 tons), imports came exclusively from Germany Russia has constructed many new coke ovens Odessa is now a center of chemical industry, particularly for sodium salts, iodin, iodoform, copper sulphate, bichlorid of mercury, chloroform, chloral hydrate, etc Among other products being made in Russia are formaldehyd, hexamethylenamin, lanolin, tannin, morphin, caffein, atropin, etc Before the war the Russian market was entirely dependent on Germany for instruments In 1913 Russia imported from Germany $250,000 worth of surgical instruments and over $2,000,000 worth of scientific and chemical apparatus A factory for surgical instruments was constructed during the first weeks of the war at Pavlovo, near Moscow The value of the production last year was about $500,000, the prices being 30 per cent cheaper than those of goods imported from abroad

PARIS LETTER

Paris, July 13, 1916

The War

TREATMENT OF WAR WOUNDS

At the Reunion medico-chirurgicale de la V-e Armee, Dr Lemaitre gave an account of the various stages of his surgical experience since the commencement of the war At the commencement he was in the habit of resting on the expectative, and intervening only when phenomena of infection manifested themselves The results were deplorable During the second phase, having come to the conclusion that all war wounds should be treated as infected, he used to operate immediately, making free openings The results were better, but suppuration invariably appeared in a few days or weeks with a considerable loss of tissue from sloughing In the third phase, in order to avoid the sloughing and suppuration, he resected all the necrosed parts and explored systematically the wound for projectiles He used as his guide in this search the blackening of the track of the bullet This new procedure was again marked by improvement, but the wound tended to remain grayish in color and wanting in tone Usually there was a good deal of discharge for at least a week In the fourth phase he acted on the supposition that in the course of his systematic exploration of the wound he was inoculating one part from another by means of his instruments Therefore, in the fourth stage he practiced complete drying of the wound, followed by treatment with tincture of iodin in order to destroy the micro-organisms which he had involuntarily sown on the surface The results were now very much better, there was no suppuration or fever, and the wound granulated rapidly and was of a healthy appearance He tried Carrel's method, but obtained results distinctly inferior to those he was already having Since July, 1915, he has returned to the method of his fourth phase, supplemented by early tentative incomplete suture The results have been so encouraging that he has increased the number of the sutures and applied the method to a larger proportion of his cases This method is still in use and may easily be described as follows (1) free exposure of the track of the projectiles, (2) removal of all foreign bodies and all necrosed or detached tissues, (3) drying of the wound and treatment of its surface by tincture of iodin, (4) bringing together of the edges by provisional sutures with drainage from the most dependent part either by the wound or by a counteropening

Dr Rocher is of the opinion that in wounds of the soft parts, especially in those due to shell fragments, it is not enough to remove the foreign bodies from the track or from the tissues which surround it Nor should one trust entirely even to the most meticulous cleaning up with the usual antiseptics It is above all necessary to excise all necrosed tissues, notably muscular masses which appear flaccid, pale or purplish, for it is in these that usually lie the germs of putrid suppuration and gaseous gangrene This sacrifice of muscular tissue will often have to be considerable, but should always be carried out with discretion In particular, one should be on one s guard against a future vicious position of the limb In these circumstances surprising results are obtained as to the rapidity of the granulation and cicatrization of the wounds, and subsequently it is found that the function of the limb is scarcely, if at all, affected Flat dressings free drainage, exposure of the wound during cicatrization and secondary suture give greater security which compensates for the time which might have been gained by an attempted primitive suture Indeed, the latter operation would seem somewhat impracticable in a busy surgical formation at the front

Dr Proust, also, who is a member of the Faculte de medecine de Paris and a hospital surgeon has laid before the Societe de chirurgie de Paris an interesting note based on eighteen months of work in ambulances at the front He first takes up the question of projectiles themselves In the earliest part of the war most of the wounds were bullet wounds with only slight infection of the track After these came shrapnel and shell fragment wounds Later the trench warfare produced bullet wounds inflicted at close range and showing explosive effects Still later there occurred more serious anatomic destruction caused by the frequent use of torpedoes, of hand grenades and high explosives With regard to the infection of wounds Proust remarks that the gravity of the wounds in the early part of the war was more particularly due to the defects in the organization of the service Later it was attributable to the nature of the projectiles, to the multiplicity of wounds in one patient and to winter conditions in the trenches From May 5, 1915, to Feb 5, 1916, ten months, the surgical automobile ambulance No 1 which was under Proust s direction cared for 1 800 wounded All the wounds were serious, since these formations are especially intended for the treatment of grave injuries Of the 1 800 wounded 419 died which gives a mortality of 23 per cent This high mortality is explained by the fact that the wounds are always infected The infection may come from the projectiles or from fragments of clothes The latter, being impregnated with filthy mud are particularly dangerous The tissues are torn and contused The muscles which are injured are particularly liable to gangrene, and this may, in part be explained by the depreciations which have been produced in them by fatigue and exhaustion To these conditions should be added vascular lesions which are very often venous, probably due to the explosive action of projectiles These are the principal reasons for the gravity of the wounds, and it is from them that one may draw indications for treatment We must transform an irregular bullet track into a clean operation wound with free exploration Proust drew special attention to certain points In view of the frequency of tears of the venous trunks, he recommends ligature of the vessel outside the primitive lesion above and below and the removal of the injured section The same is true of arterial lesions The most serious factor is the injury of bone Free fragments must be removed, but others must be treated prudently As to joint wounds this is Proust's formula Every articulation that has been penetrated by a projectile other than a bullet must be freely opened Drainage must be assured even if for that it is necessary to perform a resection such as that of the patella or of the astragalus In nerve injuries, operative indications are exceptional Immediate sutures have been twice practiced in Proust s ambulance For dressings Proust has recently employed almost exclusively Dakin's solution salt water and magnesium chlorid For fresh *superficial* wounds or for such wounds as result from circular amputation hypertonic solution 14 per cent., is in Proust s opinion the ideal topical application It opposes putrefaction of the wounds, but its use must not be too much prolonged and it must be replaced soon by solutions of magnesium chlorid which seem to have a maximum stimulating effect on the regenerating of the tissues and give admirable wounds In the presence of lacerated wounds whose infection is refractory in spite of free opening Proust had the best results from Carrel's method that is to say, discontinuous irrigation with fresh Dakin's solution If the infection is characterized by a reddish color of the tissues and bronzed infiltration, Proust substitutes ether for Dakin's solution Thanks to this careful selection of topical applications, local accidents, such as diphtheria of the wounds, abundant suppuration, etc, have become a thing of the past Unfortunately there exists a class of infections against which one is helpless These are the massive primitive infections Thus in some wounded soldiers one observes, a few hours after the injury, a high temperature a pulse scarcely perceptible, and hippocratic facies, contrasting strongly with a sense of general well-being or even of excitement Left to themselves such patients die in from twenty-four to thirty-six hours The wounds have often a gangrenous smell the freest opening is useless Amputation alone can save life, and then only if it is rapidly performed so as to avoid shock When obliged to amputate, Proust has always adopted the circular operation He remarks that even if one passes well above the lesion and operates in parts which apparently are healthy, one must always cut through a vascular sheath or bone marrow already infected in some degree, and the slightest attempt to bring together the soft parts in such cases results in serious complications, and may even cause osteomyelitis of the stump

COMPLETE DIVISION OF THE FEMORAL ARTERY AND VEIN WITHOUT HEMORRHAGE BY A FRAGMENT OF SHELL

Dr Tumon reported to the Reunion medicale de la I-ere Armee the case of a soldier who had the femoral vein and artery cut at the point of Scarpa's triangle by a *fragment* of shell but who for several days, had no hemorrhage, although no tourniquet or ligature had been applied The retracted ends of the vessels were distant from one another 5 cm (2 inches) Clots assured the hemostasis in spite of an intense suppuration of the wound The suppuration was due to the presence of a fragment of shell in the muscles and it was accompanied by septicemic phenomena and considerable phlebitic reaction of the femoral vein The artery and vein were ligatured and the fragment of shell removed The progress of the case was uninterrupted

Marriages

George John Marquette, M D, to Miss Mona Beaumont, both of Deer Lodge Mont, at Rock Creek Lake, Mont, September 6

Udo Julius Wile M D Ann Arbor, Mich, to Miss Katherine Eleanor Work of Elkhart, Ind, at Colorado Springs, August 31

Leon Grant Smith, M D, Montevidio, Minn, to Miss Edith Jeannette Lumley of Ellsworth Wis, August 30

John Joseph Whoriskey, M D, to Miss Katherine E McDonald both of Cambridge, Mass, September 4

Harry LeRoy Goff M D Cheyenne Wyo to Miss Lola May Buckingham of Chicago, about September 11

James Edwin Walsworth, M D, to Miss Margaret Mai Hutchinson both of Nashville, Tenn August 24

Ellis Benjamin Freilich, M D to Miss Mildred Kamermann both of Chicago about September 6

James Birney Guthrie, M D, to Haidee Weeks Lathen, D D S both of New Orleans, September 5

Joseph Stone Lyon, M D Hartranft, Tenn, to Miss Ethel B Lindsay of Allisonia, Va, September 2

Harry Albert Giltner M D, Omaha, to Miss Henrietta Till Kuenster of Kansas City August 28

Charles Albert Robb M D, Rock Island, Ill, to Miss Marie Metz of Chicago, September 11

John Reuben Green M D to Miss Laura Belle Kelley, both of Independence, Mo August 16

Irving Cleveland Miller M D, Berlin, Pa, to Miss Violet K Clark of Meyersdale Pa July 12

Sidney L Olsho M D to Miss Katinka M Dannenberg both of Philadelphia, September 11

Evan Ellis Owen M D., to Miss Marie Katherine Reh, both of Louisville Ky September 6

Gilbert J White M D to Mrs Ada Arends both of Chicago August 22

Deaths

Edward Louis Duer, M D, Odessa, Del , University of Pennsylvania, Philadelphia, 1860, aged 80, a Fellow of the American Medical Association, surgeon of volunteers during the Civil War and later an obstetrician and gynecologist of Philadelphia, for many years obstetrician to the Philadelphia Hospital, consulting obstetrician to Preston Retreat and Maternity Hospital, gynecologist to the Presbyterian Hospital, consulting gynecologist to the Home for Incurables, one of the founders of, and gynecologist to the Policlinic Hospital, twice president of the Philadelphia Obstetrical Society, a fellow and once vice president of the American Gynecological Society, died at his home, September 5 Dr Duer enjoyed a large practice, was loyal and devoted to his patients, thoughtful and considerate of his brother practitioners and a loyal and steadfast friend

Bernard Charles Gudden, M D, Oshkosh, Wis , Rush Medical College, 1879, aged 59, a Fellow of the American Medical Association and one of the most prominent gynecologists of Wisconsin, local surgeon of the Chicago and Northwestern Railway and attending surgeon to St Mary's Hospital, Oshkosh, in whose honor the Oshkosh Medical Club gave a dinner, April 14, 1911, on the occasion of the thirtieth anniversary of his entrance into the practice of medicine in Oshkosh, is reported to have committed suicide by strangulation, September 14, while of unsound mind by reason of a nervous breakdown

Capt Eugene Potter Stone, Medical Director, U S Navy (retired), North Sutton, N H , Harvard Medical School, 1884, aged 55, a Fellow of the American Medical Association, who entered the navy, Aug 5, 1886, for a time in charge of the Naval Hospital at Manila, and who was retired, June 24, 1914, with the rank of next higher grade to that held on active list on account of incapacity resulting from an incident of service, after a sea service of eleven years and eleven months, and thirteen years and eight months of shore or other duty at North Sutton, died September 8

John William Foss, M D, Phoenix, Ariz , Harvard Medical School, 1899, aged 54, a Fellow of the American Medical Association, and a member of the House of Delegates in 1905, a member of the Association of Military Surgeons of the United States, formerly secretary of the Arizona Medical Association and Arizona Academy of Medicine, a specialist on diseases of the nose, throat and chest, commissioned captain and assistant surgeon, Arizona National Guard, in 1904, died at his home, July 20, from chronic nephritis

Joseph C Carson, M D, Valparaiso, Ind , Medical College of Indiana, Indianapolis, 1880, Northwestern University Medical School, Chicago, 1888, aged 66, formerly a Fellow of the American Medical Association, a member of the Indiana State Medical Association, for twelve years coroner of Porter County and a lecturer in the medical department of Valparaiso University, died in Valparaiso, September 6, after an operation for appendicitis

David Strock, M D, Waukon, Iowa, University of Missouri, Columbia, 1875, aged 75, formerly a member of the Iowa State Medical Society and president of the Allamakee County Medical Society, a veteran of the Civil War, for thirty-five years a practitioner of Waukon, county physician of Allamakee County, health officer of Waukon, and state oil inspector for the district, died in Dyersville, Iowa, September 2, from arteriosclerosis

James Edward Oldham, M D, Wichita, Kan , Medical College of Ohio, Cincinnati, 1877, aged 68, a Fellow of the American Medical Association, and once president of the Kansas Medical Society, president of the staff of the Wichita Hospital for several years, local surgeon to the Rock Island System and for a time consulting surgeon to the Missouri Pacific Railway, died at his home, September 3, from nephritis

Thomas Emmett Stratton, M D, Richmond, Va , Medical College of Virginia, Richmond, 1863, aged 76, a member of the Medical Society of Virginia, from 1868 to 1870 president of the Board of Health of Richmond and for many years an officer of the United States Public Health Service, who served in the Medical Department of the Confederate Army throughout the Civil War, died at his home, September 6

Llewellyn Arch Bishop, M D, Fond du Lac, Wis , Hahnemann Medical College, Chicago, 1870, aged 70, formerly a Fellow of the American Medical Association, a member of the State Medical Society of Wisconsin, local surgeon to the Chicago and Northwestern, and Minneapolis, St Paul and Sault Ste Marie systems, twice mayor of Fond due Lac, died at his home, September 2, from cerebral hemorrhage

James Rutherford Cannon, M D, Walker, Minn , College of Physicians and Surgeons in the City of New York, 1903, aged 34, formerly a practitioner of Irvington-on-Hudson, N Y, and visiting physician to the Tarrytown Hospital, for the last two years assistant superintendent of the Minnesota State Sanatorium for Tuberculosis, Walker, Minn , died in that institution, September 5

George Whiting Ross, M D, Carollton, Ill , College of Physicians and Surgeons in the City of New York, 1879, aged 59, a Fellow of the American Medical Association and formerly president of the Western Illinois Medical and Surgical Society and Greene County Medical Society, and trustee of the Central Illinois State Hospital for the Insane, died August 31, from nephritis

William Ewing Hallock, M D, Pittsburgh, University of Pennsylvania, Philadelphia, 1878, aged 67, a Fellow of the American Medical Association and one of the best known practitioners of Pittsburgh, for several years a member of the staff of the Children's Hospital and West Penn Hospital, died suddenly on a Pennsylvania train in the Pittsburgh station, December 4

Andrew Woods Smyth, M D, Londonderry, Ireland, Tulane University, New Orleans, 1859, aged 83, from 1862 to 1887 a member of the Louisiana State Board of Health, for many years house surgeon of the Charity Hospital, New Orleans, and later director of the United States Mint, who returned to his birthplace in Ireland in 1894, died near Londonderry, September 4

Reuben Willis, M D, Somerville, Mass , Harvard Medical School, 1867, aged 73, a member of the Massachusetts Medical Society, a veteran of the Civil War, for forty-five years a practitioner of Somerville and a member of the staff of the Somerville Hospital, died in the Robert Bent Brigham Hospital, Boston, September 6, from cerebral hemorrhage

Stephen Wendell Abbott, Lawrence, Mass (license, Massachusetts, act of 1894), a practitioner since 1879, formerly a Fellow of the American Medical Association, a member of the Massachusetts Medical Society, and a member of the consulting staff of the Lawrence General Hospital, died in a private hospital in Lawrence, September 1

George P True, M D, Kansas City, Mo , Kansas City (Mo) Medical College, 1882, aged 66, sanitary inspector of the Board of Health of Kansas City, and prior to that time assistant superintendent of the Kansas State Hospital, Ossawatomie, and later of State Hospital No 3, Nevada, Mo , died at his home, September 1

Elbert Augustus Ainsworth, M D, West Union, Iowa, Syracuse (N Y) University, 1874, aged 67, city health officer of West Union, local surgeon for the Chicago, Milwaukee and St Paul Railway, physician of Fayette County and a member of the local board of education, died at his home, August 31

Percival Goodwin Wardwell, M D, Beverly, Mass , Hahnemann Medical College, Philadelphia, 1869, aged 81, for more than forty years a practitioner of Beverly, and at one time city physician, died at the home of his daughter in Maplewood, N J , September 8, from the result of injuries received in a fall

Benjamin F Taylor, M D, Columbia, Ky , University of Louisville, Ky , 1879, aged 68, a member of the Kentucky State Medical Association, who was injured when the automobile in which he was riding plunged off a bridge near Columbia, August 22, died from his injuries the next day

William S Pickard, M D, Mikana, Wis , Northwestern University Medical School, Chicago, 1886, aged 57, a Fellow of the American Medical Association, for many years a practitioner of Maywood, Ill , died in Mikana, September 10

Albert Leffingwell, M D, Aurora, N Y , Long Island College Hospital, Brooklyn, 1874, aged 71, president of the American Humane Association in 1904-1905, died at his home, September 1

Irwin Coleman Sutton, M D, Los Angeles, St Louis College of Physicians and Surgeons 1895, aged 50, formerly of Bancroft, Neb and Portland, Ore, a Fellow of the American Medical Association, died in a hospital in Glendale, Calif, August 29, from arteriosclerosis

George Carleton Parker, M D, Winthrop, Me, Dartmouth Medical School Hanover, N H 1881, aged 65, a member of the Maine Medical Association and once president of the Somerset and Kennebec Medical societies, died at his home, September 7 from cerebral hemorrhage

James G Turk, M D, Clinton, Mo, University of Louisville Ky, 1857, aged 83, assistant surgeon of the Third Kentucky Volunteer Infantry during the Civil War for the last twenty-five years engaged in mercantile business in Clinton, died at his home, August 21

Solomon Baruch, M D, New York New York Homeopathic Medical College New York 1876, aged 60, formerly captain and assistant surgeon of the Twelfth Infantry, N G S, N Y, died at his home, September 6 from arteriosclerosis

James F Pearce, M D, Claussen, S C, Jefferson Medical College, 1857 aged 81 formerly a member of the South Carolina Medical Association a Confederate surgeon for many years a practitioner of Florence County, died at his home August 29

John Levant Ramsdell, M D, Albion Mich University of Michigan, Ann Arbor, 1881, aged 64, a Fellow of the American Medical Association died at St Mary s Hospital, Rochester Minn, September 2, three days after a surgical operation

William P Stuckle, M D, Conception Mo, Central Medical College St Joseph Mo 1896, aged 44, a Fellow of the American Medical Association, died in a hospital in St Joseph Mo, August 31, following an operation for appendicitis

Henri Iskowitz, M D, New York, College of Physicians and Surgeons in the City of New York 1905, aged 31 a specialist on diseases of the ear nose and throat, died September 8, three weeks after a surgical operation

Baxter Smith, M D, Bay City Texas Tulane University, New Orleans 1874, aged 70, formerly a member of the State Medical Association of Texas, a Confederate veteran, died at his home, August 25, from malignant disease

Arthur Marsden, M D, Rio Wis, St Louis College of Physicians and Surgeons 1895, aged 47, a member of the State Medical Society of Wisconsin, was found dead in his office September 1, from heart disease

Aristide W Giampietro, M D, Tampa, Fla University of Maryland, Baltimore 1907, aged 34, a member of the American Chemical Society, died in the Gordon Keller Hospital Tampa August 30, from pneumonia

K P Thom, M D, Gallion, La Memphis (Tenn) Hospital Medical College 1904 aged 45 was shot and almost instantly killed by Dr B McKoin of Mer Rouge La, in an altercation at Gallion August 25

Samuel Moore Reynolds, M D, New York Berkshire Medical College Pittsfield Mass 1866, aged 75, for thirty years a practitioner of New York, died in St Luke s Hospital September 7, from diabetes

John H Nicol, M D, Kansas City, Mo, College of Physicians and Surgeons Keokuk Iowa, 1878 aged 67, died in Clio, Iowa July 1 after an operation for the removal of gallstones

Edward A Schmitz, M D, Wauwatosa, Wis, College of Physicians and Surgeons Chicago, 1884 aged 55, health commissioner of Wauwatosa, died at his home August 30

Michael Lewinski, M D, New York Imperial University of Warsaw Poland 1885 aged 54, died at his home September 1, from cerebral hemorrhage

John S Crow, M D, Chicago Rush Medical College 1901, aged 53 died at his home September 11, from carcinoma of the pancreas

Martha A Canfield, M D, Cleveland, Homeopathic Hospital College, Cleveland 1875, died at her home about September 4

George K Herman, M D, Chicago, Rush Medical College 1891, aged 62, died September 12 from heart disease

Prudent Bedard, Norway Me (license Maine act of 1895) aged 63 died at his home August 29

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MARK WHITE GOITER SERUM AND MARK WHITE IODINIZED OIL

Report of the Council on Pharmacy and Chemistry

The Mark White Goiter Serum Laboratories" of Chicago asked the Council to consider its products "Mark White Goiter Serum" and 'Mark White Iodinized Oil" The "serum" was claimed to be an 'antibody blood serum from a goat with thyroidosis" while the 'Iodinized Oil" was said to contain about 4 grams of iodin" to "each c c" The therapeutic indications for the treatment were given as

> Simple or Exophthalmic Goiter, Hyperthyroidism dosis, Thyrosis Thyroidosis Thyrotoxicosis Dementia '

An ampule (2 c c) of the "serum" is to be injected into the thyroid to be followed one week later by an ampule (2 c c) of the "Iodinized Oil" Repetition of this "treatment" once or twice a month is advised

The Council asked for more specific information as to the composition of the remedies, particularly as to the preparation and nature of the serum, it also asked for evidence of the therapeutic value of the preparations In reply, Mark White wrote

> All that I can say regarding the serum is that it is made from the blood of goa s with thyroid affection and it has been found that the serum from these goats has antibodies which control or has curative effect upon thyroid affections when injected into thyroid glands of either humans or animals As to the iodinised oil it is *only* an adjunct or side treatment which is not always used or indicated and will *only* be furnished to the physician for use in case in his judgment his patient needs it We shall also advise the use of quinin when indicated '

The Council was referred for further information to a paper by Rachel Watkins, M D, published in the *Illinois Medical Journal* It is to be noted, incidentally, that the letterheads used by White in this correspondence bore in one corner the notation "Rachel Watkins M D, Practice Limited to Goiter and Other Disorders of the Thyroid Glands," and in the other Mark White Goiter Research"

The information regarding the composition of this goiter treatment, as furnished in Dr Watkins' paper, was to this effect

> The medical treatment consists of the administration of a blood serum derived from a thyroidized goat Formula Iodine 0 16 grams [according to a correction by Mark White this should read 0 26 gm] oil 0 25 c c serum q s 1 c c

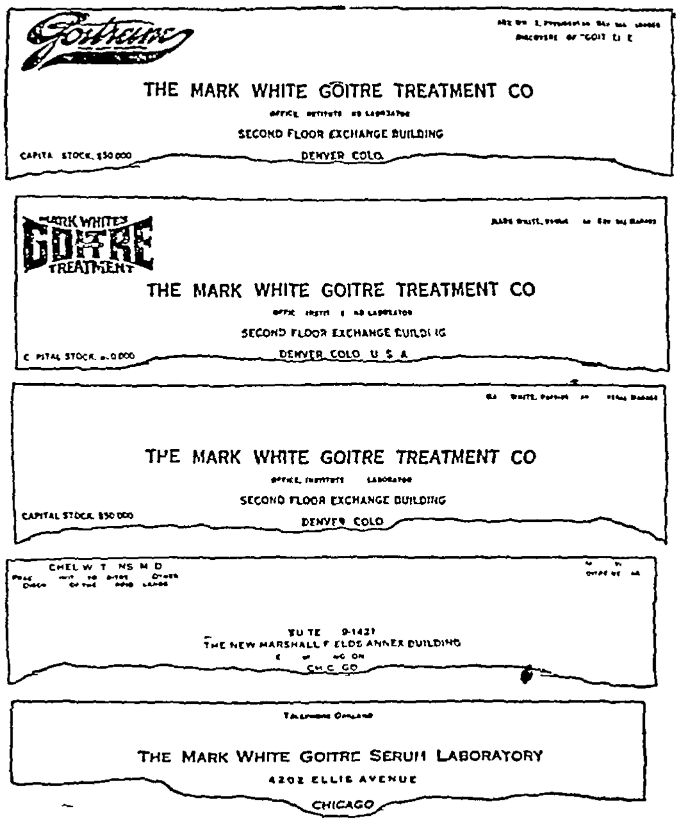
This description of the treatment differs from that furnished to the Council by Mark White in that here the iodin and oil appear to be combined with the serum Dr Watkins 'formula' implies that the iodin is a routine medication thus contradicting White s statement which, in turn, is at variance with the statements made in submitting the treatment

The Council does not accept any biologic product until its sale in interstate commerce has been authorized by the secretary of the treasury in accordance with the federal law regulating the sale of viruses serums toxins and analogous products The sale of the Mark White Goiter Serum has not been so authorized, consequently even if the preparation complied with other rules of the Council it could not be accepted

In addition however this treatment conflicts with other Council rules The statements regarding its composition are indefinite and contradictory (Rule 1), the evidence presented to support the therapeutic claims is insufficient in itself and does not appear to have been checked by any disinterested authority (Rule 6) Moreover the recognized variation in the morphology and pathology of the types of goiter render it impracticable to treat cases of goiter by any routine procedure

The foregoing report was submitted to the Mark White Goiter Serum Laboratory In reply, a letter signed "Mark White, V M D," was received, which read, in part

> " we hope at some future time to be able to give you more detailed information, but as you possibly appreciate that we have experienced for some time a demand on the part of many physicians that we furnish to them our therapy, which necessitates us furnishing it before all the detail work has yet been accomplished, and I trust that you will be so kind as to bear patiently with us until we are better in a position to make a complete scientific application and report to you "



THE MARK WHITE GOITRE TREATMENT CO
SECOND FLOOR EXCHANGE BUILDING
CAPITAL STOCK $50 000
DENVER COLO

MARK WHITE'S GOITRE TREATMENT
THE MARK WHITE GOITRE TREATMENT CO
SECOND FLOOR EXCHANGE BUILDING
CAPITAL STOCK
DENVER COLO U S A

THE MARK WHITE GOITRE TREATMENT CO
SECOND FLOOR EXCHANGE BUILDING
CAPITAL STOCK $50 000
DENVER COLO

CHEL W T NS M D
SUITE 9-1421
THE NEW MARSHALL FIELDS ANNEX BUILDING
CHICAGO

THE MARK WHITE GOITRE SERUM LABORATORY
4202 ELLIS AVENUE
CHICAGO

Photographic reproductions (greatly reduced) of some of the letter heads used by the Mark White concern during the past five years

White wrote further

> 'The serum and iodized oil may be mixed for immediate use, but could not be put up only separate for the use of the profession and the therapy furnished Dr Watkins she mixed as used "

This statement throws no light on the discrepancies in the statements with regard to the place of the iodinized oil in the treatment, namely (*a*) the original statement *that the oil* was to be given a week after the serum, (*b*) White's statement (quoted earlier in this report) that the oil "is only an adjunct or side treatment" and "is not always used or indicated", (*c*) the statement in Dr Watkins' paper that the oil and the serum are given in combination

The Council declared the Mark White Goiter Serum and Mark White Iodinized Oil ineligible for New and Nonofficial Remedies and authorized publication of this report

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Editorial Note on the Mark White "Serum"

As some of our readers will remember, on April 26, 1913, The Journal called attention to the Mark White preparation which at that time was being exploited from Denver The Propaganda Department has in its files a number of letters sent out from the Mark White concern at various times One mailed in May, 1911, on the embossed stationery of "The Mark White Goiter Institute," Exchange Building, Denver, was evidently a general letter sent to *physicians*, calling their attention to "the most important medical discovery of the age" "Dr Mark White, a graduate of the University of Pennsylvania," said the letter, had discovered "a simple and harmless remedy" that would cure goiter "*Because of the* desire to preserve the secrecy of this remedy it is given only at the office here" It was then suggested that the doctor might *send* those of his patients who were suffering from thyroidism to the "Mark White *Goitre Institute*" If he would do so he would be "given a commission of $10, in cases of the $50 fee with the additional $5 for each $50 increase" It closed with some casuistic arguments, presumably for the purpose of overcoming the physician's scruples, summing up the matter with the *statement*

> "No right thinking man will allow a narrow and self seeking system of ethics to stand between him and his duty to the sick and suffering"

About 1912 the name of the concern seems to have been changed, for we have in our files a letter addressed to a layman on the stationery of the "Mark White Goitre Treatment Company" According to this letterhead the product this concern had for sale was "Goitreine" discovered by Mark White, "President and General Manager" Mr White's letter to the sufferer from goiter assured him that if he would take "Goitreine" he might "be practically sure of *an immediate* and permanent cure" "Goitreine," according to White, "has absolutely and permanently cured 90 per cent" of all cases of goiter in which it has been used—"and the other ten showed remarkable *improvement*" It was efficacious for all forms of goiter and "cannot possibly harm"

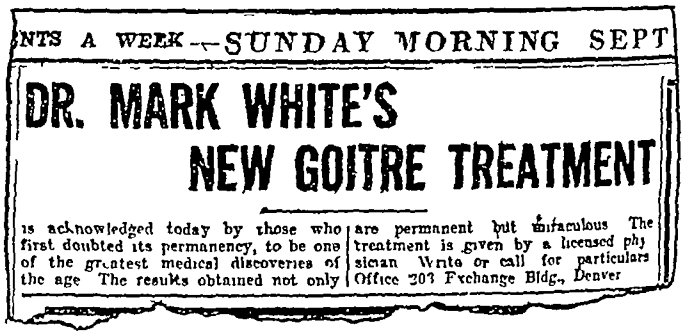
The person who received this assurance might have had his confidence in it shaken had he seen a copy of the Denver *News* for May 23, 1911, in which was reported a case of collapse and death in a woman following an injection given in White's office The paper stated that the death certificate was signed by one W A Gray and gave "fatty degeneration of the heart and goiter" as the cause of death Gray, it seems, was the licensed physician employed by Mark White to administer "Goitreine"—if that is what White happened to be calling his product at that time For here it may be stated, parenthetically, that Mark White is not a physician, he is a veterinarian

In February, 1913, Mark White sent a circular letter to a number of medical publications with the request that it be printed in full in the next issue, "to cover one full page of space" The letter White wanted printed was addressed to doctors offering to "enter into a copartnership agreement" with such physicians who would be *willing to* treat "patients with goiter affections on a 50 per cent commission basis"

> "You would be expected to make a cash charge to the patient for the treatment, remitting on the same day our 50 per cent to us, when ordering *the treatment, giving* the treatment in no cases for less than $50 00 "

About the same time that Mark White made this "fifty-fifty" offer, he sent in an advertisement to be published in the classified *column* of The Journal At that time he was told his advertisement was not acceptable, we now *reprint it* however, free of charge Here it is

> "WANTED—ONE OR MORE PHYSICIANS in each vicinity to administer and represent our new medical treatment for GOITER Good margin of profit Write for copy of contract The Mark White Goitre Treatment Co, Denver, Colo "



NTS A WEEK—SUNDAY MORNING SEPT

DR. MARK WHITE'S
NEW GOITRE TREATMENT

is acknowledged today by those who first doubted its permanency, to be one of the greatest medical discoveries of the age The results obtained not only are permanent but miraculous The treatment is given by a licensed physician Write or call for particulars Office 203 Exchange Bldg, Denver

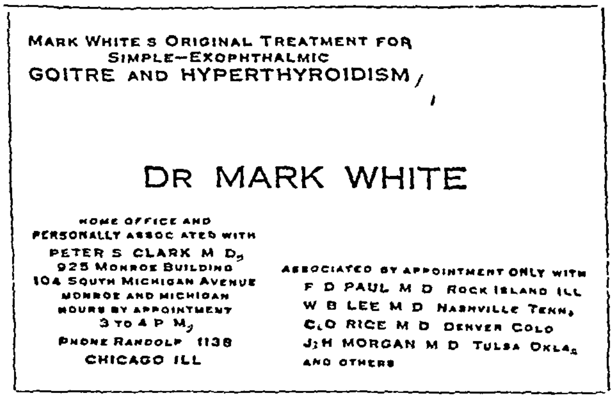
When exploited from Denver the Mark White "goiter cure" was advertised in the daily papers Here is a photographic *reproduction* (reduced) of an advertisement *that appeared in* the Denver *Post* Sept 1, 1912

In 1914, White moved to Chicago At least the card which we reproduce so indicates At that time, as will be seen, "Dr Mark White" was "personally associated" with Peter S Clark, M D According to the same card Dr F D Paul of Rock Island, Ill, seems to have been his "associate" for that particular locality In this connection, it is worth noting that a Rock Island paper, in one of its issues during July, 1913, devoted a good deal of space to "Dr Mark White" who was at that time in Rock Island "directing Dr Frank D Paul in the administering of the treatment' There was nothing to indicate that this notice was an advertisement or that the editorial appearing in the same issue puffing White's "important cure," was paid for

Dr W A Gray, who has already been mentioned as White's associate in Denver, seems to have been doing business in Illinois some time in 1913 and a Princeton (Ill) paper had some uncomplimentary things to say about him Finally in July, 1913, this item appeared in a Princeton paper

> Dr W A Gray the goiter specialist who operated last winter at Princeton and Walnut until he became embroiled with Dr Mark White a Denver veterinary and originator of the cure over a division of the spoils has opened a goiter institute in Chicago under his own name Advertisements of the Dr Gray Goiter Institute appeared Sunday morning in the Chicago *Examiner and other morning papers* Dr Gray and Mark White broke off their relations after their disagreement at Walnut and Dr Gray slightly changed the ingredients of the goiter cure and started off on his own hook '

One of Gray's advertisements in Chicago newspapers made the claim that 'Dr Gray's New Medical Treatment removes the cause of goiter in seven days'


MARK WHITE S ORIGINAL TREATMENT FOR
SIMPLE—EXOPHTHALMIC
GOITRE AND HYPERTHYROIDISM

DR MARK WHITE

HOME OFFICE AND
PERSONALLY ASSOCIATED WITH
PETER S CLARK M D,
925 MONROE BUILDING
104 SOUTH MICHIGAN AVENUE
MONROE AND MICHIGAN
HOURS BY APPOINTMENT
3 TO 4 P M,
PHONE RANDOLPH 1138
CHICAGO ILL

ASSOCIATED BY APPOINTMENT ONLY WITH
F D PAUL M D ROCK ISLAND ILL
W B LEE M D NASHVILLE TENN,
C O RICE M D DENVER COLO
J H MORGAN M D TULSA OKLA,
AND OTHERS

Photographic reproduction (reduced) of the professional card used by Dr Mark White after he came to Chicago

The Tulsa (Okla) associate of Dr" White seems to have been Dr J H Morgan and the Tulsa papers of June 1914, tell of "Dr" White s visit to that city for the purpose of instructing Dr J H Morgan in the technique of his new medical treatment for nervous disorders and goiter" Some months later—in December, 1915—the following little item appeared in a Tulsa paper

> Dr Mark White was found guilty in the county court yesterday of practicing medicine without a license and was fined $50 Doctor White is a goiter specialist '

In September, 1915, Mr Thomas S Hogan the efficient counsel for the Illinois State Board of Health instituted action against Mark White for practicing medicine without a license The case was tried Oct 15 1915 and the jury after being out four hours returned a verdict of 'not guilty ' Attorney Hogan attributes the failure to obtain a conviction to the testimony of Dr Rachel Watkins who said she had a partnership arrangement with White in carrying on the medical business It was about this time that Mark White seems to have issued some new letterheads These bore in their upper left hand corner the device Rachel Watkins M D Practice limited to Goiter and Other Disorders of the Thyroid Glands' while the upper right hand corner read Mark White, Goiter Research

On Dec 9 1915, Rachel Watkins M D of Chicago read a paper entitled 'A Serum Treatment for Physiologically Defective Thyroids, With Clinical Reports' before the Stock Yards Branch of the Chicago Medical Society The serum treatment discussed was Mark White s Goitreine which in the course of its checkered career had lost its original name by the wayside This paper appeared in the December, 1915 issue of the *Illinois Medical Journal*

Probably emboldened by the ease with which a component part of the American Medical Association 'fell for' a paper exploiting a goiter cure, Dr Watkins requested that she be permitted to read a paper on the same subject before the Section on Pharmacology and Therapeutics at the Detroit meeting of the American Medical Association last June The request was refused Dr Watkins is apparently no longer connected with White and in fact has protested against the use of her name by White in connection with his "goiter cure"

[After the above was in type and ready for the pages of The Journal, attention was called to the *Official Bulletin of the Chicago Medical Society* of Sept 16 1916 This *Bulletin* contained a full page advertisement of the Mark White "goiter cure" The advertiser referred to the preparation as having been announced to the Chicago Medical Society" and declared it to be "an ethical therapeutic agent" Mark White was described as 'a medical research student" but no hint was given that he is a veterinarian After again emphasizing that 'this therapy is ethically proven" physicians were invited to 'visit our goats when convenient" and the advertisement closed with the modest claim that "this thyroid therapy has equal curative therapeutic value in these cases as quinin in malaria" And this sort of pseudo-scientific claptrap is presented to a presumably learned profession through its own official *Bulletin*—but what's the use of commenting !]

Correspondence

Malignant Pustule A Missionary's Observation

To the Editor —I have often thought of offering the following incident for publication, but not being a medical man, I hesitated to do so

China missionaries often come in contact with a fatal form of anthrax It comes sporadically as a malignant pustule on or about the lip and requires usually less than a week to cause death Heretofore our American physicians in China have said there was nothing to do for it but cut it all out in the initial stages As it is difficult to get this accomplished, few, if any, are saved In a case in which I saw the patient die with it, after the third or fourth day, not only the face and head but also the whole body was swollen and death occurred shortly afterward

In 1915 there occurred in the city and district of Haichow, China an epidemic of rinderpest The medical missionary, Dr L S Morgan was called in by the officials to fight it He discovered from some source that when the rinderpest attacked people it could be treated with powdered ipecac as a poultice He tried and found it eminently successful On hearing him relate his experience, I asked if he thought the ipecac would cure this other form of anthrax He thought so I therefore made a practice of carrying the ipecac in my first aid package Some weeks afterward, being in a distant town, a man came to me with this fatal anthrax, appealing for help I poulticed him two days successively The pustule immediately stopped growing and became soft On leaving I gave him an extra dose of the ipecac in case of need The man himself was entirely cured, and, as I afterward learned the extra dose cured another man So far as I know this is the first time that fatal anthrax has been treated with ipecac and it is the only cure I have ever heard of

(Rev) Hugh W White Bedford Va
(Yencheng Kiangsu, China)

Magnesium Sulphate in Burns

To the Editor —In his article on the use of magnesium sulphate (abstracted in The Journal, Aug 5, 1916 p 466), Dr Meltzer mentions the good results which he has obtained by the use of magnesium sulphate in burns While government physician in the Pribiloff Islands in the Bering Sea, I had many cases of burns and scalds among the natives In one case a native had severely scalded both feet by knocking over a bucket of boiling water The man had to walk 11 miles to the hospital He had removed his socks and had on a pair of rubber boots On arrival at the hospital his feet were in a sad condition The right foot was by far the worst, and resulted in the sloughing of the tissues up to the ankle The foot was dressed three times daily with wet dressing of saturated solution of magnesium sulphate, and between the dressing periods the foot was soaked in this solution At the end of eighteen days the man was able to return to his work Also I used magnesium sulphate dressings entirely in the cases of erysipelas, of which there were a great many

H Esmond, F R C S, Union League Club, San Francisco

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

OZONE IN BRONCHITIS

To the Editor —Can you give me any information with reference to the value of the violet ray high frequency generator with special ozone generator attachment for the treatment of bronchitis? The apparatus is an electrical instrument and is handled in this part of the country by the Charles A Branstoy Company of Toronto They also sell a book with the machine, written by Noble M Eberhart, M D, Ph D, D C L, professor and head of the department of physiologic therapeutics, medical department, Loyola University, Chicago, professor of high frequency, Illinois School of Electro Therapeutics, author of "Practical X Ray Therapy," "Vibratory Technique," etc The apparatus may be all that they claim it to be and I only hope that such is the case I feel, though, as if I would like to receive some reliable 'outside" information regarding same before expending from $30 to $40 on it

D C Wigg, M D, Oshawa, Ont

Answer —Some years ago the treatment of bronchitis by ozone was thoroughly tried by many physicians and was discarded as being of no value whatever In fact, ozone may cause more harm than good It makes very little difference whether ozone is generated by the violet ray high frequency generator, by chemical means, or by a static machine

TOXIC SUBSTANCE OF POISON IVY

To the Editor —In your answer to Dr Leland's communication regarding poison ivy (The Journal, Sept 2, 1916, p 763), you say that the toxic substance is an emulsion which is thick and sticky and which readily adheres to the hands and clothing Would you object to making this interesting information more clear by stating explicitly what this emulsion is, etc ? Is it sap or a special production of the plant? Is it found in every part or only in some part or parts of the plant? Can it be dried and disseminated by the wind? You say that it is not volatile and yet people seem to contract ivy poisoning who have not been closer to a plant than a number of feet I have always thought that the poison must pass through the air and be inhaled by persons found afterward to be poisoned Are the extremely severe cases in which the entire body is covered by the dermatitis due entirely to actual contact with this emulsion by the hands or clothes? These points are extremely important in country practice

Richard Cole Newton, M D, Montclair, N J

Answer —The emulsion is the sap of the plant and is found in most of the living parts The heart wood, trichomes, pollen and ripe fruits do not contain it It may be collected by making an angular incision into the bark and scraping out the exuded juice with the handle of a teaspoon As exuded the juice is a viscid, cream-colored emulsion of the consistency of thick cream On exposure to the air it darkens, becoming brown and eventually black The sap is composed approximately of resin 80 per cent, gum 5 per cent and water 15 per cent The resinous portion is a nonvolatile, amber colored, sticky fluid which is a mixture of two liquid resins only one of which is toxic The toxic portion is extremely poisonous, 1 1,000 mg being sufficient to produce symptoms when rubbed on sensitive areas of the skin The gum is similar to gum acacia and is not poisonous It contains a powerful enzyme called laccase which, in the presence of air, causes the resin to take up oxygen, resulting in the production of a beautiful, lustrous, durable black varnish In the Orient the sap of the eastern poison sumac, *Rhus vernicifera*, has been collected for varnishing purposes for more than 2,000 years under the name of Japanese lacquer and in Japan the art of employing the varnish has been brought to a very high state of perfection The juice cannot be dried to a powder so that it may be disseminated by the wind When dried it forms the nigrescent, adhesive varnish mentioned above The popular belief that the poison may be carried through the air is, with rare exceptions, erroneous Persons can be poisoned either by touching the toxic plants or by touching articles (such as tools or clothing) that have been in contact with the plants The exceptions are the instances in which poisoning has resulted from exposure to the smoke from burning stems It has been shown experimentally that this is physically possible by the carriage of the poisonous resin on particles of soot in the smoke Other than this there are no authentic cases of poisoning without contact either with the plant or with contaminated objects The nonvolatile nature of the poison, its extreme toxicity, its insolubility in water, and its absence in the cork cells, hairs and pollen have each been demonstrated by elaborate chemical and physical tests The extremely severe cases of dermatitis covering the entire body have usually been contracted when the patient was perspiring On drying the body the poison has been spread by the towel After exposure the exposed area should be swabbed with cotton moistened with *alcohol or gasoline, taking care that the* solvent is thoroughly removed, otherwise the toxic agent will be spread over a larger area For further information readers are referred to the recent studies reported by McNair, *Jour Infect Dis*, September, 1916

VODKA

To the Editor —1 Can you furnish me with any literature or references on the sale, etc, of vodka as regards Russia? 2 What are the facts regarding the effects of vodka as compared to whisky, percentage of alcohol, manufacture, etc ?

R W Van Deventer, M D, Hardin, Mo

Answer —1 The following is a list of references to recent articles on the subject

Simpson, J T Vodka Prohibition and Russian Peasant Life, *Contemporary Review,* December, 1915, cviii, 729
Some Russian Doctors on Prohibition, *Survey* Feb 12, 1916
Russia's Initial Victory, Living Age, Feb 5, 1916, p 367
Beckterew, V M Abolition of Drunkenness Among Russians the Moral and Physical Uplift, *Russk Vrach,* 1915, No 15, abst, The Journal, Sept 18, 1915, p 1067
Skerwell, A J Russian Vodka Monopoly, *Contemporary Review* May, 1915, cvii, 572
Fight Against Vodka, *Independent,* April 6, 1914 p 16
Russia's Vodkaless Army, *Literary Digest* Nov 14, 1914, p 965
Iordanski, V I Burn of Stomach by Strong Vodka, *Izvest Obsh Astrakhan Vrach,* 1911, iv, 5

2 Vodka, or vodki, is a fiery tasting liquor, properly distilled from fermented rye mash but sometimes from barley corn, or potatoes Before the Russian prohibition act of 1914, vodka was the principal alcoholic liquor consumed in Russia As it was a government monopoly, the Russian government made every effort to insure a product of high purity, that is, as free from furfurol, amylic alcohol, etc, as was commercially possible In consequence, vodka essentially was an aqueous solution of pure alcohol without color or added flavor As prepared, vodka contains about 96 per cent of absolute alcohol, but before being sold at retail it is diluted to contain from 40 to 60 per cent Its physiologic effects are those of alcohol

DYEING THE HAIR

To the Editor —I should like to ascertain a suitable hair dye for changing a spot of white hair dark brown or black I have a patient who has spots of white skin and one of these spots is on the head The hair at this place is devoid of pigment The papers and books on skin diseases recommend walnut stain My recollection is that following the use of walnut stain there may be marked dermatitis

K W Smith, M D, Madison, Wis

Answer —The dyeing of the hair satisfactorily is a difficult matter except for those experienced in such measures Nearly all barbers undertake such work, most of them use a paraphenylene diamin solution and iron sulphate to secure a brown color There is some risk from dermatitis following the use of this solution but, with due caution, it is not great

TREATMENT OF ALOPECIA AREATA

To the Editor —Please suggest the latest treatment for alopecia areata I have been treating a case for more than three years, and still the condition persists

Colbert S Davis, M D, Rock Island, Ill

Answer —The treatment of alopecia areata is, of course, described in all textbooks on diseases of the skin The latest treatment advised is vigorous exposure to ultraviolet light from a quartz lamp Like all other treatments, it is uncertain of results, in fact, there is no method of treating alopecia areata that is sure to make the hair grow

Medical Education and State Boards of Registration

COMING EXAMINATIONS

California Los Angeles Oct 3 Sec, Dr Charles B Pinkham Room 527 Forum Bldg Sacramento

Colorado Denver Oct 3 Sec Dr David A Strickler 612 Empire Bldg Denver

Georgia Atlanta Oct 10 12 Sec Dr C T Nolan Marietta

Idaho Wallace Oct 3 Sec Dr Charles A Dettman Burke

Illinois Chicago Oct 10 12 Sec Dr C St Clair Drake Springfield

Iowa Des Moines Oct 17 19 Sec Dr Guilford H Sumner State House Des Moines

Kansas Topeka Oct 10 12 Sec, Dr H A Dykes Lebanon

Michigan Lansing Oct 10 12 Sec, Dr B D Harison 504 Washington Arcade Detroit

Minnesota Minneapolis Oct 3 6 Sec, Dr Thomas S McDavitt, 814 Lowry Bldg St Paul

Mississippi Jackson Oct 24 25 Sec Dr J D Gilleylen Jackson

Montana Helena Oct 3 Sec Dr William C Riddell Helena

Porto Rico San Juan Oct 3 Sec, Dr Quevedo Baez San Juan

Medical Council of Canada, 1915 Report

The Fourth Annual Report of the Medical Council of Canada reports that 88 candidates were examined during 1915, of whom 49, or 55 7 per cent passed, 23 failed and 16 were refused in one or two subjects The results for graduates of the Canadian Medical Schools represented at the examinations are shown as follows

Medical School	Total Examined	Passed	Failed	Refused	Percentage Passed
McGill University	25	20	4	1	80 0
Queen s University	31	11	13	7	35 5
University of Toronto	11	7	2	2	63 6
Western University	9	5	2	2	55 6
University of Manitoba	8	5		3	62 6
Laval University	4	1	2	1	25 0
Totals	88	49	23	16	55 7

The highest percentage of graduates who passed was obtained by McGill with 80 per cent The two universities having the lowest percentage of successes were Laval University with 25 and Queen's University with 35 5

Georgia June Report

Dr C T Nolan, secretary of the State Board of Medical Examiners of Georgia, reports the written examination held at Atlanta June 1-2 1916 The total number of subjects examined in was 10, total number of questions asked, 100, percentage required to pass, 80 The total number of candidates examined was 129 of whom 126 passed and 3 failed Eleven candidates were licensed through reciprocity The following colleges were represented

College	PASSED	Year Grad	Per Cent
Birmingham Medical College		(1915)	82 7
Medical College of Alabama		(1890)	82 4
Atlanta Medical College	(1915) 88 4 (1916) 80 81 1 82 9, 82 9 83 83 85 2 83 3 84 84 1 84 2 84 3 84 4 84 5 84 7 84 7 84 9 85 85 1 85 2 85 2 85 4 86 1 86 2 86 2 86 3 86 4 86 4 86 5 86 5 86 6 86 7 86 8 86 9 86 9 86 9 86 9 86 9 87 87, 87 1 87 1 87 3 87 4 87 5 87 6 87 7 87 8 88 1 88 2 88 2 88 3 88 3 88 4 88 4 88 5 88 6 88 7 88 8 89 89 89 1 89 2 89 2 89 3 89 5 89 6 89 7 89 7 89 9 90 2 90 3 90 4 90 4 90 5 90 5 90 6 90 7 91 3 91 4 91 4 91 4 91 4 91 5 91 6 91 6 91 9 91 9 92 1 92 5 92 5 92 7 92 9 93 3 94 94 8		
Atlanta School of Medicine		(1909)	81
University of Georgia	(1916) 80 86 7 86 9 87 5 87 7 88 4 89 2 90 3 91 4 91 5 91 5		
Bennett Medical College		(1915)	80
University of Louisville		(1911)	80
Johns Hopkins University		(1912)	89 2
University of Maryland		(1915)	90 6
Columbia University College of Phys and Surgs		(1916)	94 8
New York Homeo Med Coll and Flower *Hosp*		*(1914)*	86 6
Meharry Medical Coll	(1912) 84 4 (1915) 82 2 (1916) 80 3 83		83 1
University of West Tennessee		(1914)	84 7
Vanderbilt University	(1914) 81 9 89 6 (1915) 81 6 90		
	FAILED		
Atlanta College of Physicians and Surgeons		(1907)	68 1
Meharry Medical College		(1916)	70
Knoxville Medical College		(1908)	73 6

College	LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
University of Maryland		(1914 2)	Maryland
American Medical College St Louis		(1911)	Missouri
University Medical College, Kansas City		(1904)	Missouri
Columbia University, College of Phys and Surgs		(1915)	N Carolina
Leonard Medical School	(1907) Pennsylvania,	(1910)	N Carolina
Meharry Medical College		(1912)	Tennessee
University of Tennessee		(1904)	Tennessee
Vanderbilt University		(1914)	Tennessee
University of Virginia		(1903)	Tennessee

Book Notices

Diseases of the Skin By Richard L Sutton M D Professor of Diseases of the Skin University of Kansas School of Medicine Cloth Price, $6 50 Pp 916, with 701 illustrations St Louis C V Mosby Company 1916

Dr Sutton is one of the most indefatigable of American dermatologists, a treatise on dermatology naturally comes as a sequence of his labors He has been an independent investigator, but his work has been constructive and not iconoclastic As would be expected, therefore, his treatise, while showing his independence of view, is along conservative lines, and is free from the unpardonable sin in a textbook of being controversial The arrangement is an adaptation from the old classification of Hebra which is still the most logical one for grouping cutaneous diseases He gives an admirable preliminary consideration of the principle of dermatology, devoting nearly a hundred pages to this This work is well done, and it is highly recommended for study to the practitioner who would obtain a grasp of the subject of dermatology as a whole as distinguished from a smattering knowledge of a few dermatoses

The remaining pages of the book are devoted to a consideration of the various dermatoses In this practically all diseases of the skin are more or less fully described The commoner diseases are described in detail the rarer ones briefly but as fully as could be expected in a work of this size The descriptions for the most part are concise but clear, and are written from a first hand knowledge of the subject The author has illuminated many of his topics by his own comments but he has curbed any inclination to elaborate individual views which may not have general acceptance Occasionally one wishes that he would loosen this curb a little, and allow more rein to his convictions For example If he were asked in conversation to say what eczema is, he would probably say that it is dermatitis, but when he comes to define eczema he gives the habitual old definition of an inflammatory disease of the skin, and writes out every lesion that can be produced by inflammation of the skin as characterizing it He winds up with the desperation of all authors who try to square this definition with their conscience, by exclaiming "The fact remains that eczema is only a sort of dermatological scrap-heap' He then proceeds to give an excellent systematic description of the various forms of this scrap-heap Which reminds one a good deal of the old woman who began her 'patent medicine testimonial by saying, "No words can describe the symptoms from which I suffered," and then proceeded to give a very full and complete description of them

The illustrations are numerous and instructive Most of the original pictures are good, and the reproductions have been well made The book represents the best modern views of dermatology, and is a credit to the author and to American dermatology

The Expectant Mother By Samuel Wyllis Bandler M D Professor of Gynecology in the New York Post Graduate Medical School and Hospital Cloth Price $1 25 net Pp 213 with 14 illustrations Philadelphia W B Saunders Company, 1916

The author of the well known "Medical Gynecology' has prepared this book for physicians, nurses and the *intelligent* laity with the hope of explaining, in simple language the physiologic process which the pregnant woman undergoes Several of the chapters dealing with puberty and adolescence have been abstracted from the above mentioned book The present book is more technical than most similar works on the subject, it is questionable whether anything is gained by informing the expectant mother in a technical discussion, of the mechanism of fecundation and impregnation, or of the steps in the growth of the placenta The author recommends in every case, after four and one half months, the use of an abdominal belt, stating that a certain widely advertised brand is the best

In speaking of the care of the intestinal tract during the last four weeks of pregnancy, the author says, in a somewhat involved sentence

"Even if they (the bowels) move every day, it is advisable once a week, to give the patient either—(a certain artificial proprietary mineral water) or aperient water or magnesia or some aperient which cleanses the intestines"

In the list of supplies with which each patient who is to undergo labor at home is to furnish herself, he includes one package of each of several proprietary preparations rejected by the Council on Pharmacy and Chemistry One he says is ideal If the patient takes as much of another as the author mentions in succeeding chapters, one bottle will hardly be sufficient

In his discussion of the treatment of hemorrhoids he recommends another rejected preparation The last few chapters of the book are devoted to complicated labors, eugenics, puberty, etc

If Dr Bandler would have been as conservative in his recommendations of proprietary medicines and preparations as he was in most of his advice on the subject of obstetrics the book would be more in accord with modern medical ideals

Influence of Occupation on Health During Adolescence Report of a Physical Examination of 679 Male Minors under 18 in the Cotton Industries of Massachusetts By M Victor Safford, Assistant Surgeon, United States Public Health Service Paper Price, 10 cents Pp 51 Public Health Bulletin No 78 Washington Government Printing Office, 1916

Under this somewhat too general title is published a report of the results of the physical examination of 679 male workers under 18 years of age employed in the cotton industries of Massachusetts This investigation was made in a state which has been a pioneer in matters of industrial legislation, and in which not only public bodies, but also private employers have shown a high sense of their duty in such matters It is not surprising, therefore, to find that the result of the inquiry is negative, that is to say, that it did not disclose any instances in which the minors' were employed in work which inherently, or in the special conditions presented, was liable to be injurious to their health Nevertheless, the author of the report, Surgeon Safford, thinks it advisable to make recommendations providing against such a contingency, the most important being the improvement in the present method of issuing employment certificates to minors He proposes that this work shall be vested exclusively in some central state agency, and that the certificate when issued, shall not be irrevocable, its renewal being conditioned on a favorable report as to the physical condition of the minor at work

Milk and Its Hygienic Relations By Janet E Lane Clayton, M D, D Sc, Assistant Medical Inspector under the Local Government Board Cloth Price, $2 50 net Pp 348, with illustrations Published under the Direction of the Medical Research Committee (National Health Insurance) New York Longmans, Green & Co, 1916

This book is published under the direction of the Medical Research Committee (National Health Insurance) in England It represents a collection of the available scientific evidence on the hygienic relations of milk Chapters are devoted to the general composition of human cow's milk, the organic and inorganic constituents, the biologic properties, the cellular content, breast feeding, and the relative values of boiled milk as compared with raw milk, especially in relation to the production of such diseases as scurvy and rickets The later chapters of the book deal with the sources of contamination, the hygiene of production, and the methods of pasteurization Each chapter is preceded by a short summary of its contents written in nontechnical language which enables the layman to obtain an insight into the subject Each chapter is followed by a list of references to periodical literature on the subject discussed The book will make a valuable reference work for those interested in pure milk production

Medicolegal

Commission in Medical Reserve Corps Not Authority to Practice in State

(Haberlin vs Englehardt (N Y), 157 N Y Supp 839)

The Supreme Court of New York, Appellate Term, First Department, reverses a judgment obtained by the plaintiff for medical services rendered by him to the defendant The court says that the only question litigated was whether the plaintiff, who was never registered to practice medicine in New York state, nor authorized to practice medicine under the public health law of the state, was entitled to practice medicine generally in the state by virtue of his commission as a first lieutenant in the medical reserve corps of the United States Army pursuant to the act of Congress of April 23, 1908 The question presented is a new one so far as the court has been advised or has been able to discover from an examination of the authorities, but it is not deemed a difficult one to determine when the statutes pertaining thereto are analyzed The public health law of New York state provides that no person shall practice medicine unless licensed and registered as required, but "This article shall not be construed to affect commissioned medical officers serving in the United States Army, Navy, or Marine Hospital Service, while so commissioned" Section 7 of the act of Congress of April 23, 1908, provides that "for the purpose of securing a reserve corps of medical officers available for military service, the president of the United States is authorized to issue commissions as first lieutenants therein to such graduates of reputable schools of medicine, citizens of the United States, as shall from time to time, on examination to be prescribed by the secretary of war, be found physically, mentally and morally qualified to hold such commissions, the persons so commissioned to constitute and be known as the Medical Reserve Corps The commissions so given shall confer on the holders all the authority, rights and privileges of commissioned officers of the like grade in the Medical Corps of the United States Army, except promotions, but only when called into active duty, as hereinbefore provided and during the period of such active duty" What was the intent of Congress in the enactment of this statute? Is it not clearly apparent from a reading of the context thereof that the object was the creation by appointment of a body of medical doctors eligible for the Medical Corps of the United States Army in the event of emergency, but who in the meantime, unless promoted to the Medical Corps, are to be their own masters so far as their individual time and labor are concerned? If this is not so, then why was the language in the last sentence quoted used? Giving to this statute a liberal construction, the court is of the opinion that the plaintiff's duties as a medical officer do not begin unless promoted to the Medical Corps, until called into active duty by the government, and that he is not serving in the United States Army until so called into active duty If the court is correct in its views, then clearly the plaintiff failed to bring himself within the provisions of the saving clause of the public health law, which calls for a reversal of the judgment herein, rendered in the plaintiff's favor, and a dismissal of the complaint on the merits Judgment reversed, with $30 costs, and complaint dismissed on the merits, with appropriate costs in the court below

Malpractice Under Industrial Insurance Law

(Ross et ux vs Erickson Construction Co et al (Wash) 155 Pac R 153)

The Supreme Court of Washington holds that, in this action by Ross and wife against the construction company and a physician to recover damages alleged to have been suffered by reason of the malpractice of the physician in the treatment at his hospital of plaintiff Ross for an injury sustained in the company's service, the plaintiffs had no cause of action The court says that the physician was employed to do the surgical and hospital work for the construction company, and was paid for his services out of a fund made up by deducting $1 from the monthly wages of the employees After leaving the hospital the plaintiff made a claim under the industrial insurance law and accepted a final award Subsequently this action was brought for the recovery of damages laid in the sum of $15 000 and resulted in a verdict for the plaintiffs in the sum of $1 The court directs that the case be dismissed The defendants contended that no recovery could be had against either of them, for the reason that plaintiff Ross had been compensated for all injuries resulting from his primary injury, or proximately attributable thereto The industrial insurance law is grounded in a humanitarian impulse It takes account only of the place of injury and the extent of the disability, and compensates for the conditions resulting from the primary injury, or in other words, it will reject no element of disability if it has accrued in consequence of the first hurt, or as an aggravation arising from any collateral contributing cause The legislature knew that workmen had been compelled to meet the defense of nonliability on the part of the employer, who might plead the malpractice of the attending surgeon as a bar to recovery and if they pursued their remedy against the malpractitioner they might be subject to the hazard of expert opinion evidence from which a jury may generally find a sufficient warrant to follow its own inclination There was no assurance of a recovery against either party, or against either offender On the other hand, the employer and faithful and competent physicians and surgeons had been put to the hazard of ill-founded suits The deserving had gone from the courts their wrongs unredressed The undeserving had taken that which, in good conscience, was not their own, and to cure all the legislature passed the industrial insurance law covering all phases of the premises ' These things seem clear to the court, but it must be admitted that it is exploring a new field and there is but little to offer to those who find no assurance for their opinions unless something is found to throw on the shrine of authority" and precedent" To all such the court can say no more than that a diligent search has convinced it that there are no cases 'in point ' But to confirm its conclusion that the consequences of malpractice are an element which will be considered and compensated for by the state, the court can offer a few cases bearing slightly But it is said that a holding that the master and the surgeon are not liable to answer for an aggravated condition resulting from the ill treatment of a wound, or the malpractice of a surgeon may result in grievous wrong in that only a partial recovery may be had What is or what is not a full recovery in a given case is a relative question with which the court has nothing to do It is enough that the legislature has fixed a schedule of recoveries within which the discretion of the commissioners may move subject to a 'court review as provided in the act and in lieu of a system that often brought a full recovery in unmeritorious cases and as often no recovery at all in meritorious cases it has substituted a system that will insure an award in all cases Surgical treatment is an incident to every case of injury or accident, and is covered as a part of the subject treated When a workman is hurt and removed to a hospital or is put under the care of a surgeon, he is still within every intendment of the law in the course of his employment and a charge on the industry and so continues as long as his disability continues The law is grounded on the theory of insurance against the consequence of accidents

Account Taken of Effect on Health of Overflowing Land

(Southern Indiana Power Co v Miller (Ind) 111 N E R 925)

The Supreme Court of Indiana says that the purpose of this action was to appropriate certain land overflowed by the construction of a dam by the company and to assess the damages sustained by the owner of the land by such appropriation or condemnation Over the company s objection, two physicians were permitted to testify that in their opinion the overflowage from the dam would increase the breeding of mosquitoes along the river, and thus cause malaria among the tenants on the farm of the owner of the land in question The admission of this evidence was not objectionable Courts take judicial knowledge of the fact that overflows and floods are followed by disease, and that swampy lands are detrimental to public health Evidence of witnesses who are properly qualified to show the probable effect of such conditions on those living near is admissible

Society Proceedings

COMING MEETINGS

Am Assn for the Study and Prev of Inf Mort Milwaukee, Oct 19 21
Am Assn of Obstetricians and Gynecologists Indianapolis, Sept 25 27
American Association of Railway Surgeons, Chicago, Oct 17 19
American Public Health Association Cincinnati Oct 24 27
American Roentgen Ray Society Chicago Sept 27 30
Clinical Congress of Surgeons Philadelphia Oct 23 28
Delaware State Medical Society Milford Oct 9 10
Idaho State Medical Association, Twin Falls, Oct 5 6
Indiana State Medical Association Ft Wayne Sept 27 29
Kentucky State Medical Association Hopkinsville Oct 24 27
Medical Association of the Southwest, Ft Smith Ark Oct 2 4
Minnesota State Medical Association Minneapolis Oct 11 13
Mississippi Valley Medical Association, Indianapolis Oct 10 12
Nevada State Medical Association Reno Oct 10 12
New England Surgical Society, Boston Oct 5 7
New Mexico Medical Society Albuquerque Oct 11 13
Southern Medical Association Atlanta, Nov 13 16
Vermont State Medical Society, St Johnsbury Oct 12 13
Virginia State Medical Society Norfolk Oct 24 27
Wisconsin State Medical Society, Madison Oct 4 6

COLORADO STATE MEDICAL SOCIETY

Forty Sixth Annual Session held at Glenwood Springs Sept 5 7 1916

The President Dr John R Espey, Trinidad, in the Chair

Dysmenorrhea

Dr. L G Weldon Denver An operation on the uterine canal for dysmenorrhea when something else is at fault is as much to be criticized and condemned as that of gastro-enterostomy done on a patient suffering from a Lane kink I have demonstrated repeatedly that at the time when pain is most severe in a great many cases there is actually no blood in the uterus and the canal is perfectly free and normal It is possible that in certain cases when we think the canal is obstructed because we fail to introduce the sound, the latter has merely become lodged in a pocket or fold of the cervical mucosa or met with an acute flexion Unless the flexions are marked, they are not liable to cause enough obstruction to produce dysmenorrhea

In 109 cases of dysmenorrhea seen in conjunction with other conditions the displacements were found in 38 per cent pelvic pathologic conditions in 31 per cent conditions pertaining to the structure of the uterus in 11 per cent, different forms of adhesions cicatricial contractions, varicosities cystic conditions, etc in about 11 per cent, and mechanical obstructions to the uterine canal including carcinoma of the cervix and vaginal deformities in 9 per cent

Of the 109 cases operated on for dysmenorrhea nearly all had the uterine canal dilated and cureted from one to five times and in over 100 of these something definite was found in the pelvis as the unmistakable cause

If after using every means at our command in history-taking physical examination blood and urine tests, correction of erroneous habits and rebuilding the general health we can eliminate beyond a reasonable doubt the existence of mechanical or inflammatory trouble in the uterine canal, and find that we can accomplish nothing then no further time should be lost in going into the abdomen, for there the trouble will be found 99 times out of 100

DISCUSSION

Dr Ella Mead Greeley I see many girls who are suffering from dysmenorrhea Fifty per cent of them never consult a physician I suppose that 75 per cent of the girls who do have dysmenorrhea do not realize that anything can be done for them, and only those who have the most frightful conditions consult physicians I think constitutional conditions have a great deal to do with these cases of dysmenorrhea All know the intimate connection between the glandular scretion and the woman's sexual life Recently gynecologists have spent considerable time in discussing the hypophysis, the thymus, and the thyroid gland in regard to pelvic disturbances, and the thymus and corpus luteum have been used to correct a great many of these disturbances, with gratifying results

Dr L C Weldon In the cases I have been able to examine regularly the point has been brought out in dysmenorrheal cases that there is a visible turgescence and swelling of the uterus We may have cases of pelvic infection without a visible sign of redness or swelling, and consequently there is no dysmenorrhea

New Growths and Infections Associated with and Following Chronic Suppurative Appendicitis

Dr C E Tennant, Denver Chronic irritation is recognized as a factor in the development of cancer about the stomach and other acid-secreting visceral organs This theory may account for the rarity of cancer in the intestine and appendix Meyer reports 269 cases of cancer of the appendix In a splendid summary of the subject he says that "in carcinoma of the appendix we have a condition formerly believed to be very rare, but now known to occur in 0 5 per cent of all removed appendices" It is a condition never recognized before operation, and usually unrecognized at the time of the operation, there being only 10 per cent of removed appendices that are suspected before being sent to the pathologist

DISCUSSION

Dr Emil Ries, Chicago I desire to call attention briefly to the question of pseudo-myxoma peritonei and to the origin of malignant neoplasms on irritated soil or the question of trauma or irritation carcinoma Is there one part of the bowel that is more frequently irritated chronically than the appendix, and is there one part of the bowel where there is less carcinoma than in the appendix?

Ulcer of the duodenum is much more frequent than ulcer of the stomach Have any of you ever seen carcinoma of the duodenum? I have seen two on the operating table in my whole operative experience I have seen less of carcinoma of the stomach, and if carcinoma of the stomach is caused by ulcer of the stomach, why is it that ulcer of the duodenum which is more frequent, does not cause carcinoma more frequently?

As to malignant neoplasms of the appendix, as I remember the literature contains about 300 such cases, including carcinoma This is a small number of malignant neoplasms in an organ which is notorious for its chronically infected irritative condition

Complications Following Operations for Acute Appendicitis

Dr F N Cochems, Salida The common complications to which references will be made are 1 The accumulation of fluid in the pelvis which is frequently overlooked and its proper treatment 2 Pulmonary embolism 3 Necrosis of the intestine due to tying off the circulation 4 Adhesions at the site of the line of incision and method of closing the wound 5 Perforation of the intestine due to stiff drainage tube 6 Some points in the treatment of intestinal obstruction accompanying diffuse peritonitis, and obstructions due to other causes

In acute appendicitis with abscess formation drainage should be instituted immediately and to bring about the most suitable drainage, gravity and capillary attraction should be taken into consideration A diligent search should be made for fecal concretions in cases of people suffering from appendicitis who are along in years, say above 50, especially in pus cases, lest the stone, which so often in these cases escapes the attention of the operator, is left to produce a varying degree of trouble We have not used stiff drainage tubes for many years We prefer the cigaret or plain gauze

DISCUSSION

Dr J N Hall, Denver I reported some time ago fourteen cases of abscess in the subphrenic space, in the liver or lung, and I have seen many more such cases since that time There is nothing more distressing than to see the ordinary appendix case which has been neglected in the early stages that is infected, retrocecal in origin, with the infection starting upward It is not the appendix per se that makes the trouble, but the complications

Chronic Appendicitis and Its Gastric Relations

Dr H A Black, Pueblo In the chronic type of appendicular disease, the pain in the region of the appendix may be entirely absent, and when present, may be characterized by a feeling of distress rather than a clear cut attack It will at times come on two or three hours after eating, but more often soon after the taking of food Epigastric pain in these cases may be purely a reflex sensation, or as is probably more frequent, pain actually from the pylorus caused by reflex action on that structure The cause of recurring gastric distress a few hours after the taking of food is a protective spasm of the pylorus, a clinical entity recognized only in the past few years, and which may be reflexly caused by irritation of the cecum from a chronically inflamed appendix In all cases where the symptoms point to a chronic gastric disorder, aided by the Roentgen ray and the laboratory, most careful search must be made to determine the causative factor which in no small percentage of cases will be found to be that small outlaw inhabitant of the right iliac fossa

DISCUSSION

Dr Crum, Pueblo We know that a chronic appendix, at times, will create a set of gastric symptoms similar to those associated with gastric ulcer From a roentgenologic standpoint, we know also there are findings which are not so constant as would appear on first blush to be those of duodenal ulcer

The Faucial Tonsil in Its Relation to Systemic Conditions

Dr Kenneth C Magruder, Colorado Springs In cases of recurrent tonsillitis or quinsy, in which the patient is frequently incapacitated the tonsils should be removed In cases of malnutrition in children, in which tonsil and adenoids are diseased or obstructive, the removal of these organs gives the most gratifying results In arthritis and muscular rheumatism, when associated with attacks of tonsillitis, removal of the tonsil alleviates or cures the condition In enlarged thyroid with hypersecretion (not the colloid form) and in chorea good comes from enucleation of a diseased tonsil The indiscriminate removal of tonsils is to be condemned not only because it is wrong but because such procedure has caused the laity and some physicians to regard a tonsil enucleation as a minor operation Diseased tonsils may come to be recognized as one cause of sterility in women

DISCUSSION

Dr Thomas E Carmody, Denver The essayist brought up the question as to whether tonsillectomy is a major operation or not Recently I have performed this operation on two surgeons, and they both agree it is a major operation I have believed for a long time that the teeth played an important part in some of these cases of tonsillitis, and physicians are awakening to the fact now more than they did a few years ago We used to think that the removal of the tonsils made the male sterile, but that has been disproved We all know of cases where couples have been married for years and years and have been sterile until something happened and the women became pregnant

Dr H A Smith, Delta In some cases it is better to keep the patient under observation two or three weeks or a month before reaching a decision as to whether the tonsils should be removed If you find a red line on the external part of the pillar take a hook and draw the pillar forward If you find inflammation sufficient to justify you in dealing with the tonsil, do so carefully, and perhaps the condition of the patient will clear up

Dr Gerald B Webb, Colorado Springs I had the pleasure a short time ago of working out one or two cases with Rosenow, and I feel that the reason his work has not been corroborated better by the pathologists of the country is practically the same reason why Pasteur's work was not corroborated and endorsed by his confreres as it might have been in the early days, namely because these men do not pay the attention they should to the details and care with which Rosenow carries on his work In removing an offending organ like the tonsils or decayed teeth, one should not expect too much because bacteria have already settled in other parts of the body

Dr Frank R Spencer, Boulder I have personally enucleated tonsils for the following conditions recurrent acute attacks of tonsillitis, quinsy, arthritis, muscular rheumatism chorea, tuberculosis, headache, anemia, goiter, cervical adenitis and different types of ear disease I have not enucleated tonsils for nephritis, peptic ulcer, multiple neuritis, hypertension appendicitis and sterility in women I believe if the laryngologist could have the cooperation and advice of a competent internist before completing his diagnosis, there would be fewer errors in advising for or against the removal of the tonsils and laryngology would be placed on a higher plane

Dr J W Amesse, Denver Twenty years ago I suffered from diseased tonsils in coming up from Central America, and by the time I reached Baltimore my joints were considerably involved I went to the Johns Hopkins Hospital Dr Porter made cultures from the material removed, and found the *Streptococcus viridans* which, when injected into rabbits was followed by fatal results Within two weeks following the removal of my tonsils my joints were relieved, and in a comparatively short time I gained 40 pounds

Tumors of the Breast

Dr. Philip Hillkowitz, Denver There are only three pathologic conditions of the breast which the surgeon must keep in view and on whose recognition he shapes his policy of action 1 The benign tumor known as fibro-adenoma 2 Cystic disease of the breast 3 Cancer The indication for operative procedure in fibro-adenoma is naturally to extirpate the tumor, leaving the rest of the breast intact As there are no metastases it is needless to touch the axillary region

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Medical Sciences, Philadelphia

September CLII No 3

1 Diagnosis of Poliomyelitis J B Neal and P L Dubois New York —p *313*
2 *Value of Quantitative Estimation (Wolff Junghans Test) of Dissolved Albumin in Gastric Contents in Diagnosis of Cancer of Stomach J Friedenwald and R. F Kieffer Baltimore —p 321
3 *Pharmacology of Emetin E J Pellini and G B Wallace New York —p 325
4 *Effects of Retention in Kidney of Media Employed in Pyelography W F Braasch and F G Mann, Rochester Minn —p 336
5 *Transplantation of Thyroid in Dogs C Goodman New York —p *348*
6 *Gastric Function in Pulmonary Tuberculosis H K. Mohler and E H Funk Philadelphia —p 355
7 Injuries to Peripheral Nerves Produced by Modern Warfare C B Craig Paris —p 368
8 *Dietetic Management of Hypercholesterinemia in Cases of Cholelithiasis M A Rothschild and N Rosenthal, New York —p 394
9 Influenzal Meningitis Report of Case R G Torrey Philadelphia —p 403
10 Tuberculosis of Tongue Report of Case J R Scott —p 411
11 *Addison s Disease Report of Case with Acute Onset Terminating in Rapid Improvement and Complete Recovery T Tieken Chicago —p 422

2 **Wolff-Junghans Test in Diagnosis of Cancer of Stomach** —The authors conclude that the Wolff-Junghans test is of great value as an aid in the diagnosis of certain forms of gastric carcinoma The test is however, only useful in the diagnosis of the disease when there is an absence of free hydrochloric acid in the gastric contents and then only when the question of even traces of blood can be eliminated and in the absence of all retained food residue or of swallowed saliva or sputum The test has its greatest significance in the diagnosis between simple and malignant achylias Positive reactions are rarely observed in simple achylias, while they are frequent in cancer

3 **Pharmacology of Emetin** —The following points are emphasized by Pellini and Wallace Emetin depresses and may eventually paralyze the heart It is a powerful gastro-intestinal irritant whether given by mouth or subcutaneous injection It causes a definite derangement of metabolism, characterized by an increase in nitrogen loss and an acidosis While in normal individuals given moderate doses, these actions may not be of importance, in pathologic states of the circulation intestinal tract, or metabolism, they may be a very definite source of danger

4 **Retention of Media Employed in Pyelography** —Thorium nitrate, in *10* or *15* per cent solution, Braasch and Mann state is the least harmful and objectionable substance to use in pyelography Care must be taken in its preparation that the solution is thoroughly neutralized

5 **Transplantation of Thyroid in Dogs** —There was not, in the entire series of thirty experimental operations reported by Goodman a single instance of infection In twelve of these cases intratracheal anesthesia with the Janeway intratracheal apparatus was used In the remaining cases ether was administered with an Allis inhaler Among the homotransplantations there were three instances in which the parathyroid gland remained in a normal state of preservation while the thyroid showed evidences of autolysis In autotransplantation Goodman succeeded in two consecutive instances in retaining the thyroid in its normal state microscopically In twenty-five out of thirty instances the segments of the carotid artery remained free *from thrombosis* and in four instances the superior thyroid artery also remained patent and without any evidences of thrombosis although the gland transplanted has undergone autolysis and was partly absorbed The technic employed consists briefly in an implantation of the thyroid underneath the muscles of the neck and a biterminal suture of a segment of the attached carotid of the severed vessel of the host and end-to-end suture of the thyroid vein with the central end of the external jugular of the opposite side

6 **Gastric Function in Tuberculosis** —The patients studied by Mohler and Funk comprised twenty-two early and twenty-five advanced cases of pulmonary tuberculosis Among the early cases eleven complained of symptoms referable to the gastro-intestinal tract Of this number three suffered with symptoms prior to and the remaining eight subsequent to the development of cough, fever, etc, symptoms common in early lesions The gastric symptoms complained of in order of frequency were belching, fulness and distress in the epigastrium anorexia and vomiting The high point of total acidity occurred at or before the one and a quarter-hour period in eleven instances Of these eleven cases three presented gastric symptoms and eight no symptoms Of the twenty-five advanced cases, twenty-four patients complained of gastro-intestinal symptoms The morning residuum revealed the presence of mucus, bacteria and leukocytes in excessive amounts in twenty of the cases The tubercle bacillus was present in the residuum in eighteen cases The high point for total acidity in this group of cases averaged twenty-four, and for free acidity twenty, distinctly below the normal

The authors conclude that pulmonary tuberculosis causes a definite downward progression in both the motility and the secretory function of the stomach from the very beginning of the disease Hyperacidity with symptoms occurring in early stages and described by previous writers as common is quite rare Even hyperacidity without symptoms is rare—the type which corresponds to the normal hyperacidity curve of Rehfuss existing in 40 to 50 per cent of normal individuals (Rehfuss) exists considerably less frequently in early tuberculous patients This would indicate that even in early tuberculous patients, changes in gastric functions are present The so-called pretubercular dyspepsias of previous writers Mohler and Funk believe are in reality manifestations associated with definite tuberculous infection They do not believe that there is an *irritative stage* giving hyperacidity in early tuberculosis Their studies suggest that the gastric disorder is the result of disease of the gastric mucosa

8 **Hypercholesterinemia in Cholelithiasis**—Exactly as some individuals have a so-called gouty or uric acid diathesis with a retention of uric acid Rothschild and Rosenthal hold that some individuals retain their lipoids and the result is a retention hypercholesterinemia, the excretion of a more or less saturated bile, and ultimate precipitation of the retained cholesterin in the gallbladder, the common duct and its finer radicals The subsidence of an attack means that the patient has rid himself of the obstruction and will be in good health until the saturation point in the blood and bile is again reached The recognition of this diathesis is extremely important for the patient Under proper dietetic management in a large percentage of these cases a secondary operation might be avoided Hence one should examine the blood of every case of cholelithiasis without jaundice for cholesterin before operation In the presence of hypercholesterinemia, provision should be made for drainage of the bile to deplete the body of the retained lipoids The drainage tube should not be removed until the blood and bile show a normal cholesterin content, and during this period the diet should be low in lipoids Further accumulation of cholesterin can be controlled by dietetic measures, placing the patient on a fat free diet which both excludes lipoids to a large extent and renders difficult the esterization of the free cholesterin in the food

On a strict, practically lipoid free diet, only vegetables are allowed excluding beans and peas which are fairly rich in a metameric product, phytocholesterin All other vegetables, as well as cereals and sugars, are allowed The milk should be skimmed and fat free buttermilk permitted This diet is so strict that the majority of patients will not maintain it for a long period, therefore, the authors have devised "fast and feast day" periods For three or four days a week the patient lives on the strict, lipoid free diet outlined above, the so-called fasting periods, which serves to deplete the organism of the stored-up lipoids For the next three or four days, dependent on the grade of the hypercholesterinemia, a more liberal diet is permitted, the so-called "feast days" On the "feast days" the patient is allowed, in addition to the articles stated above, well-cooked lean meats and fish, excluding salmon shad and bluefish, the fat content of which is high Oleomargarin is allowed instead of butter

11 **Recovery from Addison's Disease**—The case reported by Tieken occurred in a young man and ran an acute febrile course, with nausea, vomiting diarrhea and marked asthenia There was pigmentation of the skin, a low blood pressure, loss in weight, pain in the abdomen and lumbar regions, anemia, insomnia and marked cerebral disturbance After a period of six weeks the patient began to improve and made a rapid recovery After two years his health is still good

American Journal of Orthopedic Surgery, Boston

September, XIV No 9

12 Anatomy of Visceroptosis W E Sullivan, Boston—p 507
13 Role of Visceroptosis in Etiology of Arthritis Deformans D Silver, Pittsburgh—p 513
14 Medical Aspects of Visceroptosis H W Bettmann, Cincinnati—p 522
15 Visceroptosis from Roentgenologist's Viewpoint F H Baetjer Baltimore—p 530
16 What Evidence Can Be Brought Forward to Show That Visceroptosis is Anything More Than Variation from Anatomic Norm and is of Frequent Causative Clinical Significance? R B Osgood, Boston—p 533
17 Case of Fracture of Odontoid Process of Axis P Le Breton, Buffalo—p 549

American Journal of Public Health, Boston

August VI No 8

18 Improvement of Cancer Mortality Statistics in United States C E Lakeman, New York—p 791
19 Organizing State Campaign of Public Health Education C E A Winslow, New Haven, Conn—p 805
20 Suppression of Drug Vice Considered from Demand Side J F Chase, Boston—p 814
21 Physical Examination of Employees J B Andrews—p 825
22 Latest Features in Diagnosis and Prevention of Some of Occupational Poisonings W H Rand, Washington, D C—p 830
23 Scientific Management in Industry and What It Includes G M Price, New York—p 836
24 Comparison of Bacteriologic Methods for Examination of Oysters C Bates and L A Round, Washington, D C—p 841
25 Other Factors in Infant Mortality Than Milk Supply and Their Control G L Meigs, Washington, D C—p 847
26 Milk Clarifiers C Bahlman, Cincinnati—p 854
27 Fundamental Distinctions Between Larger and Smaller Cities in Health Administration W E Park, Rockford, Ill—p 858
28 Homogenized Milk and Cream H B Baldwin, Newark, N J—p 862
29 Accuracy of Diagnosis of Municipal Health Conditions Based on Vital Statistical Data F C Gram, Buffalo—p 865
30 Water Chlorination Experiences at Toronto, Canada F Adams, Toronto, Canada—p 867
31 Efficiency in Worker and Its Maintenance W I Clark, Worcester—p 870

Boston Medical and Surgical Journal

September 7, CLXXV, No 10

32 Some Theoretic Considerations on Present Status of Roentgen Therapy J Shohan, Boston—p 321
33 Some Efficiency Problems in Country Medical Practice F H Washburn, Holden—p 328
34 Circulatory Disturbance in Obese C L Buck, Danvers—p 332
35 Jean Pierre David, The Man Who Potted Pott J Ridlon, Chicago—p 336
36 Clinical Symptomatology and Laboratory Findings in Three Cases of General Paresis Under Intravenous Arsenobenzol Treatment G E Mott and S M Bunker, Worcester—p 338

Journal of Cutaneous Diseases, Boston

September XXXIV, No 9

37 *Principles of Treatment of Syphilis S Pollitzer, New York—p 633
38 *Transmission of Syphilis, With Particular Reference to Paternal Source of Infection U J Wile, Ann Arbor, Mich—p 645
39 Meningococcus Meningitis with Unusual Purpuric Manifestations, Demonstration of Diplococcus in Skin C T Sharpe, New York—p 659
40 Histopathology W J Heimann, New York—p 664

37 **Treatment of Syphilis**—Pollitzer's plan of treatment may be summarized as follows Specific therapy should be instituted at the earliest possible moment after a positive diagnosis is made Three injections of salvarsan shou'd be administered in large doses, at intervals of twenty-four hours, and followed by a course of eight weekly injections of salicylate of mercury If the treatment was begun before the appearance of the roseola, there is a strong presumption of cure and the case may remain under observation without further treatment When the treatment is begun after the appearance of a rash, the first course of salvarsan and mercury is repeated after a pause of two months, and again after another similar interval After three courses within the first year, if the Wassermann reaction has remained negative, further treatment may await the reappearance of a positive Wassermann reaction In cases which come under treatment a year or more after infection, treatment should be continued till the Wassermann reaction becomes negative, and thereafter two more courses of treatment should be administered, even though the Wassermann reaction remains negative After a year or more of constantly negative Wassermann reactions without treatment, the cure should be tested by a provocative injection of salvarsan and by an examination of the spinal fluid

38 **Transmission of Syphilis**—Wile's observations have led him to believe that a paternal inheritance usually results in expulsion of the fetus before birth in the first pregnancies and stigmatized children, if such are born alive, in the later pregnancies Maternal infection, therefore, would not be hereditary, but would be an acquired form of syphilis, except when the syphilis is recent in the mother For those cases in which maternal infection results in expulsion of the fetus, one would have to presume the unfertilized ovum to be the seat of the resting or active stage of the spirochete as may occur with the male germ cell That such is infrequent is established by the pathology of ovarian syphilis Paternal infection, therefore, would be for the most of the cases, the commonest mode of transmission With regard to placental transmission, Wile states that the weight of evidence is more in favor of a fetal infection of the placenta than of infection of the placenta by the mother The complement binding substances passing through readily from the fetus to the mother, suggest an explanation for the uniformly posi-

tive tests in the mother and the otherwise inexplainable phenomenon that most of such mothers go through life Wassermann positive, without ever having clinical syphilis

Journal of Infectious Diseases, Chicago

September XIX No 3

41 Comparison of Rapid Method Lilliputian Plate Cultures of Counting Bacteria in Milk with Standard Plate Method W D Frost Madison Wis—p 273
42 Adaptation to Certain Tensions of Oxygen as Shown by Gonococcus and Other Parasitic and Saprophytic Bacteria W B Wherry and W W Oliver Cincinnati—p 288
43 Leptothrix Innominata (Miller) W B Wherry and W W Oliver, Cincinnati—p 299
44 Filterability of Bacillus Bronchisepticus W B Wherry Cincinnati—p 304
45 New Model of Double Pipet Holder and Technic for Isolation of Living Organisms F Hecker, Kansas City Mo—p 306
46 *Complement Fixation in Tuberculosis H J Corper, Chicago—p 315
47 *Studies on Acquired Typhoid Immunity F W Hachtel and H W Stoner Baltimore—p 322
48 *Causation of Gastric and Duodenal Ulcer by Streptococci E C Rosenow—p 333
49 Studies on Forage Poisoning R Graham and L R Himmelberger, Lexington Ky—p 385
50 Spontaneous Amebic Dysentery in Monkeys A Eichhorn and B Gallagher Washington D C—p 395
51 Strength and Composition of Blackleg Vaccines O M Franklin and T P Haslam Manhattan Kan—p 408
52 *Bacteriology of Urine in Lobar Pneumonia G Mathers Chicago—p 416
53 Pathology of Dermatitis Venenata from Rhus Diversiloba J B McNair Berkeley Calif—p 419
54 Transmission of Rhus Poison from Plant to Person J B McNair, Berkeley Calif—p 429
55 Refinement and Concentration of Antitoxins P G Heinemann Chicago—p 433
56 Cytology of Exudate in Early Stages of Experimental Pneumonia F A Evans New York—p 440
57 Agglutinins in Hog Cholera Immune Serum for Bacillus Suipestifer H Wehrbein Ames Iowa—p 446
58 *Colloidal Chemistry and Immunology M von Krogh Argentine—p 452
59 *Experimental Scurvy in Guinea Pigs L Jackson and J J Moore Chicago—p 478
60 *Bacteriologic Studies on Experimental Scurvy in Guinea Pigs L Jackson and A M Moody Chicago—p 511
61 *Lesions in Rabbits Produced by Streptococci from Chronic Alveolar Abscesses A M Moody Chicago—p 515

46 **Complement Fixation in Tuberculosis**—The examination by Corper of 361 persons (25 of them normal 11 questionably nontuberculous and 325 definitely tuberculous) using both an emulsion and an autolysate prepared from living virulent human tubercle bacilli as antigens shows that (*a*) The complement fixation test for tuberculosis is not absolute being positive only in about 30 per cent of all the clinically definite cases of tuberculosis both active and inactive Active cases give a higher percentage of positive results than inactive cases (*b*) The value of the complement fixation test for tuberculosis lies in the fact that taken in conjunction with other findings, a definitely positive reaction makes the diagnosis of tuberculosis certain (*c*) It is of value also from a differential diagnostic standpoint in that it indicates tuberculosis when positive as against syphilis carcinoma abscess of the lung empyema from other causes bronchiectasis etc Corper points out that the practical absence of a reaction in nontuberculous cases makes this test when positive of far greater value in the diagnosis of tuberculosis than any of the biologic tests for tuberculosis thus far discovered A positive test was never obtained in the absence of a positive von Pirquet reaction but a large percentage of clinically normal individuals giving positive von Pirquet reactions were negative in fixation tests

47 **Acquired Typhoid Immunity**—The experiments reported on by Hachtel and Stoner were too few to form the basis of any dogmatic statement but it would seem that the immunity following inoculation is due to a training of the cells in the production of antibodies so that afterward they yield these more prolifically

48 **Gastric and Duodenal Ulcer**—Streptococci having a characteristic affinity for the stomach and the duodenum have been repeatedly isolated by Rosenow from various foci of infection in patients with ulcer and from the ulcers themselves They tend to disappear from the circulation and do not commonly produce marked lesions otherwise They have been isolated from ulcers in animals, and ulcer has again been produced on their reinjection Filtrates of these cultures show no special tendency to produce ulcer The necessary requirements have been fulfilled to warrant the conclusion that the usual ulcer of the stomach and of the duodenum in man is primarily due to a localized hematogenous infection of the mucous membrane by streptococci Rosenow's clinical and experimental observations on which this conclusion is based are reported in detail

52 **Urine in Lobar Pneumonia**—Mathers found that during the course of an attack of lobar pneumonia, pneumococci may be excreted in the urine They appear in the urine usually at a time just before or just after the crisis and do not seem to bear any definite relation to the other pathologic elements in the sediment The pneumococcus strains isolated from the urine in Mather's experiments are similar to those found in the blood and the sputum hence a possible source of infection Incidentally urinary cultures may be of great value in the diagnosis of pneumonia or of pneumococcal infections in general

58 **Colloidal Chemistry and Immunology**—It appears probable from von Krogh's analytical review that in the blood under normal as well as pathologic circumstances, in vitro as well as in vivo, there takes place a very complicated ensemble between several ferments and antiferments, all of them colloid substances whose degree of dispersity has great influence on their effect And more, the equilibrium of these substances in a very labile one so that a small change may give opportunity for the most far-reaching alterations So it may be possible that the colloidal changes which take place through the union of antigen and antibody may disturb the equilibrium of the whole system and inactive ferments of any nature may be activated or active ferments put out of action by adsorption to the new formed colloidal union Von Krogh suggests the possibility that the pathogenesis of a great many of the infectious diseases may be explained from this point of view, namely that the living bacteria or protozoa disturb the colloidal equilibrium of the liquids of the organism and so put normal ferments out of action or pathologic ferments into activity Theoretically such a process appears very probable, but as yet there is no experimental support for it

59 **Experimental Scurvy in Guinea-Pigs**—Experimental scurvy was produced in guinea-pigs by Jackson and Moore by diets of pasteurized, raw, boiled skimmed and condensed milk streptococcus broth and milk, milk and green vegetables thyroid extract and milk, casein and water, oats, bread and bran The addition of calcium lactate to milk or the injection of calcium lactate into guinea-pigs on a milk diet did not prevent scurvy A cream diet and a diet of olive oil added to milk produced a fat constipation" with early death Daily injections of olive oil into animals on a milk diet had no antiscorbutic effect Mixed broth cultures of *Streptococcus viridans* and *Streptococcus hemolyticus* water lactose water and lime water did not produce scurvy In a series of six guinea-pigs fed on goat s milk for over forty days no symptoms of scurvy developed The average time for the onset of symptoms with pasteurized milk was nineteen days With other milk diets this varied from eleven to nineteen days The earliest lesion was observed on the tenth the latest on the twenty-ninth day Cultures of the heart blood from guinea-pigs with scurvy from milk diet were sterile and passage of blood from these animals to normal animals did not produce the disease

60 **Experimental Scurvy in Guinea-Pigs**—Bacteriologically cultures of crushed tissue resulted in the isolation of a diplococcus of low virulence with a tendency to form chains and produce green on blood agar Pure strains of these organisms inoculated into the circulation of guinea-pigs and rabbits living under ordinary conditions (a mixed diet consisting of green vegetables hay and oats) gave rise in most instances to hemorrhagic and other lesions in the bones, joints muscles lymph glands or gums Streptococci of the same type as those injected were recovered from the lesions in these animals as late as forty days after a single intra-

12 Traumatic and Arteriovenous Aneurysm R J Swan—p 169, C H Whiteford—p 179 and J L Joyce—p 181
13 Surgical Anatomy of Synovial Membrane of Knee Joint A Fullerton—p 191

Journal of Tropical Medicine and Hygiene, London

August 15, XIX, No 16

14 Case of Cataleptic Trance J A Haran—p 189
15 Measurements of Dutton and Todd's Gambia Strain of Trypanosoma Gambiense Dutton, 1902 A J Chalmers and W R O'Farrell—p 189

Lancet, London

August 26, II, No 4852

16 Educational Number—p 353

Practitioner, London

August XCVII, No 2

17 *New Method of Bloodless Circumcision H Curtis—p 101
18 Hyperalgesia in Abdominal Disease D Ligat—p 106
19 Reaction of Child to Faulty Environment H C Cameron—p 137
20 Vicious Circles in Disease and Nature's Efforts to Deal with Them F P Weber—p 145
21 Acute Local Pyrexia J H Wilson—p 149
22 Dermatitis Due to Hair Dyes J L Bunch—p 173
23 Report on Six Months' Gynecologic Operations A B Lindsay—p 180
24 Case of Extensive Malignant Ulceration Treated by Roentgen Rays F Hernaman Johnson—p 188
25 Ether and Chloroform Anesthesia R E Humphrey—p 191

17 **Bloodless Circumcision**—The method devised by Curtis is briefly as follows On either side of the median dorsal line, the prepuce is seized between two pairs of forceps, the points of which are pushed right up to the level of the corona glandis The prepuce between the clamps is slit up to the corona into two lateral flaps each of which is clamped from below upward, at a distance of about one sixth of an inch from its attachment in the circumcoronal region The clamp, in the case of each flap, is applied with the point directed upward and inward, that is, toward the median dorsal line, the angle of union of the blades being made to lie at a point about one sixth of an inch distant from the frenum More than one clamp is generally necessary, and to secure bloodlessness, it is essential to apply the second, or higher clamp, so that there is no interval of prepuce left unclamped between the first and second (or more) clamps, from which oozing could subsequently occur With a catgut suture, threaded at both ends with short straight needles, perforate the flap just proximal to the clamp, from mucous membrane to skin, pulling the catgut nearly halfway through, so that the midpoint of the suture will lie over the free lower margin of the flap, close to the frenum A second needle is then passed in the opposite direction, from skin to mucous membrane, through the same stitch hole, and the ends of the suture are drawn taut, much as is done in stitching a boot This maneuver is repeated to the other end of the flap, passing the needles in opposite directions from mucous membrane to skin, and vice versa the two needles always passing through one and the same aperture, until the upper cut edge, near the median dorsal line, is reached The ends of the suture are drawn comfortably taut and tied The other lateral flap is similarly stitched The ends of this second suture being drawn taut and tied, are then tied to one or both ends of the first suture The clamps are then removed from the flaps, and the redundancy trimmed off all round, just distal to the suture line, completing the operation The hemorrhage should be nil

Bulletin de l'Académie de Médecine, Paris

August 8 LXXVI No 32 pp 107 120

26 Transient Albuminuria a Common Biologic Incident in the Healthy (Sur les albuminuries transitoires) Capitan—p 107
27 *The Iodin Urine Reaction Petzetakis—p 110
28 *Serotherapy in Typhoid A Rodet—p 114
29 Smallpox at Marseilles in 1915 1916 Arnaud—p 116
30 *Revival of Ancient Endemic Focus of Malaria in France (Reviviscence d'un ancien foyer de paludisme autochtone dans la vallee de la Seille) G Etienne—p 118

27 **The Iodin Reaction in the Urine**—Petzetakis' so-called "new iodoreaction" was described in these columns September 16, p 911, abstract 60 In 76 cases of pulmonary tuberculosis the findings were constantly negative in a group of 33, none of whom have died during the four months since In 12 with a slightly positive reaction, one died the fortieth day, and 2 died in a group of 10 giving a positive reaction, and 15 of 21 giving a very strong reaction—all within two months

28 **Serotherapy in Typhoid**—Rodet is convinced that serotherapy shortens the course of typhoid when begun in time The difference in the outcome according to the date it is begun testifies further to its efficacy The average duration of the disease was 23 7 days among 167 typhoid patients given serum treatment before the eleventh day, and thirty-three days in twenty-eight who did not receive it till later Any associated infection impairs its action

30 **Revival of Malaria in French Valley in War Zone**—Etienne relates that malaria had long been endemic in the Seille Valley, which is infested with the malaria mosquito, but he had not known of any new case since 1888 until last year In 1915 a number of new cases were encountered all in persons who had never been in tropical or other malarial regions He thinks it probable that troops from Africa and French China have brought virulent malaria parasites into the country, and thus the mosquitoes are serving anew as intermediary hosts

Presse Médicale, Paris

August 17 XXIV, No 46, pp 361 368

31 *Technic for Gastrectomy with End to Side Gastrojejunostomy (Cure radicale du cancer du pylore) V Pauchet—p 361
32 Can There Be an Ideal Antiseptic? A Jousset—p 364

31 **Gastrectomy for Cancer of the Pylorus**—Pauchet's article is accompanied by sixteen illustrations showing the various steps of the end-to-side gastrojejunostomy which he advocates The stump of the duodenum left projecting is capped with a piece of the gastrohepatic ligament drawn down for the purpose He advises lavage of the stomach before the operation not only to clear it out but also to train it in this exercise, as it may be necessary after the operation if the patient vomits or has fever He has the patient wrapped in cotton from head to foot the day of the operation, and gives him subcutaneously from 1 to 3 liters of physiologic serum with sugar He always prefers regional anesthesia as general anesthesia is too dangerous on account of lung complications It generally has to be supplemented with a few whiffs of a general anesthetic in operations for ulcer, but this is rarely needed with cancer The jejunum is drawn up through a hole made in the mesocolon The segment sutured to the stomach is about 15 cm from the duodenojejunal angle If the cut end of the stomach is too long for the slit in the jejunum, the stomach end can be sutured independently for a stretch The head of the pancreas must be carefully examined, and if it has been denuded or otherwise molested it must be covered with omentum sutured in place The patient leaves the bed the fourth or fifth day and the threads are removed the twelfth Some of the patients have diarrhea He gives them every day 1 or 2 liters of water containing five lumps of sugar, 1 gm hydrochloric acid, and the whites of two eggs to the liter The stomach reduced to one third of its former size functionates like a normal stomach This method permits removal of two thirds of the stomach by a simple and remarkably rapid technic Before attempting the operation he has the teeth put in order and systematically cleaned before and afterward painting the gums with iodin During the week before and after the patient drinks nothing that is not sterile and taken from sterile vessels

Correspondenz-Blatt fur Schweizer Aerzte, Basel

August 12, XLVI, No 35 pp 1025 1056

33 *Recent Research on the Cornea and Retina (Neue Beobachtungen an Hornhaut und Netzhaut des Auges) O Haab—p 1025
34 Physicotherapy in Military Circles (Die physikalischen Heilmethoden in unserm Armeesanitätsdienst) Haslebacher—p 1033
35 Types of Field Latrines Now in Use (Hygiene militaire Les latrines de campagne) F Messerli—p 1038

33 Subsidence of Keratitis Under Tuberculin—Haab calls attention to a form of keratitis which he has named *Buchstaben-*, "letter," keratitis He has encountered only seven cases of it in the course of eighteen years Its detection requires illumination from the side, with an exceptionally powerful light, such as a Nernst or Osram light The surface of the cornea shows certain linear irregularities, the epithelium projecting a trifle to form short lines which, as they meet and cross form figures resembling the straight line letters, A W V or X Small round infiltrations may be scattered along the lines, and there may be some irritation of the eye The keratitis may subside in from one to three weeks but in some cases it returns again and again It may entail reduction of the intra-ocular pressure or even loss of vision from the changes in the depths and on the surface In one such case a woman of 25 had lost the use of the left eye from years of the keratitis with permanent opacity of the cornea She had been under specialist treatment for years without avail The right eye finally became involved No treatment seemed to have any power to arrest the slow progress of the affection until, after nine months, as a last resort, a course of tuberculin treatment was commenced, and at one stroke the trouble was checked The inflammation subsided the cornea became smooth and vision improved from 5/60 to 1/3 in less than two months and finally became 6/6 In the course of three months twenty-four injections of tuberculin had been given, and there can be no doubt that this saved the eye which was slowly going the way of its mate in which vision had long been only 1/10 He has had no opportunity to try tuberculin in any other case of the kind See following abstract

33 Recent Research on the Retina—Haab declares that the red color of the fundus is not due to the blood as generally assumed but to pigmented epithelium back of the retina The red of the fundus does not give the hemoglobin line in the spectroscope and in a case of lipemia—the blood nearly white—the fundus showed its normal red color but the finer capillaries in the retina were quite white He comments further on the peculiar vulnerability of the macula lutea the tiny yellow spot on which we depend to gain our daily bread Any slight trauma is liable to injure it, even cause production of a hole in it Any metal foreign body in the vitreous body or sudden compression may set up an isolated disturbance of the fovea alone It seems probable that the great demands made physiologically on the fovea may wear it out prematurely The foveal reflex—the transverse oval shape—occurs only when the macula and its environment are sound and hence is an index of the condition of the macula With atrophy of the optic nerve, the foveal reflex enlarges showing that the fovea has become flatter With myopia the premature disappearance of the central reflex is the first symptom of pathologic conditions in the macula and calls for treatment at once Linear reflexes may be observed with optic neuritis or other affections involving the macula These linear reflexes occur radial to the center of the fovea leaving the center free and may form a halo around the macula They are always of pathologic import Sometimes they are due to edematous swelling of the retina throwing it into folds or the fovea may be in the hyaloid membrane The preceding abstract is from the first half of Haab s article

Gazzetta degli Ospedali e delle Cliniche, Milan

August 1 XXXVII No 65 pp 1009 1024

36 Clinical Importance of Mixed Infection in Diphtheria. F Lanzarini—p 1010

Policlinico, Rome

August 1 XXIII No pp 995 1018

37 Physical Measures in Treatment of Accidents and War Wounds (La terapia fisica nella traumatologia e nella medicina in guerra) R Pinali—p 999
38 *Heliotherapy for the Wounded (L elio erapia rigeneratrice delle forze) A Maffi—p 1001
9 Albuminuria and Life Insurance I Romanelli—p 1003

Medical Section No 8 pp 281 312

40 *Pernicious Anemia Four Cases A. Roccavilla.—p 281
41 *A Subacute and a Chronic Case of Leukemia (Leucemia subacuta mieloide a piccole cellule linfocitoidi Leucemia cronica mieloide a sindrome tifoidea) A Bolaffi—p 294

38 Heliotherapy for the Wounded—Maffi has been making a special study of the effect of sunlight as a means of treating bone and joint tuberculosis and other lesions, and has obtained most excellent results in the last two years In one case of leg ulcer with huge elephantiasis of the leg below, the ulcer of twenty years duration, rebellious to all measures systematic heliotherapy healed the lesion in two weeks, and with the aid of Thiersch flaps the ulcer was completely cured by the end of the month Extreme and individual care is necessary in the tuberculous cases on account of danger of overflooding the organism with the toxin set free but in all other cases the method can be applied with confidence without special care It had been his intention to make a special study of heliotherapy on transatlantic liners but the war interfered with these plans The exhausted sick and wounded soldiers returning from the front benefit immensely from a course of heliotherapy exposing the front one day and the back the next, gradually increasing the exposures The men bask in the sunlight with enjoyment, and thrive much better than those not taking the heliotherapy

40 Pernicious Anemia—Roccavilla reports in minute detail four cases of pernicious anemia in men of from 50 to 65 death occurring in four or five months after the increasing weakness had first attracted attention In one a syphilitic origin was probable.

41 Leukemia—In the first of the two cases described, the patient was a lad of 15 and the white corpuscles were almost exclusively of the immature forms The blood-producing organs showed histologic changes at necropsy after five months' course of the disease The spleen and liver were much enlarged and Bolaffi cultivated the *Streptococcus conglomeratus* from the blood The case was distinguished by its long duration and by the absence of any lesions on the mucosa The bone marrow showed myeloid metaplasia and there was micromyeloblastic proliferation The other patient was a previously robust man of 41 who developed suddenly extreme prostration with fever dying the fortieth day after presenting diarrhea the spleen and liver progressively enlarging the blood showing myelocyte leukemia

Brazil-Medico, Rio de Janeiro

July 29 XXX No 31 pp 241 248

42 Cotton Hygrometer (Sobre um novo hygrometro) A Godoy—p 242

Russkiy Vrach, Petrograd

XV No 23 pp 529 552

43 *Dietetic Treatment of Gastric Ulcer (O dietitcheskom letchenii krugloi yazvi zheludka) A I Yarotsky—p 529
44 Operative Technic in Region of Subclavian Vessels (V oblasti podkliutchitchnikh sosudov) N A Dobrovolskaia—p 537
45 Organization of Aid for Maimed Soldiers S A Brushtein—p 539
46 Action of Guanidin and Methylguanidin on Blood Vessels and Circulation (Vliyanie methylovikh proizvodnikh guanidina na krovеobrashtshenie)—p 544 (O sosudosuzhivarushtshem dieisvie guanidina i ego methylovikh proizvodnikh) M P Bovshi' and E I Sinelnikoff—p 546
47 *Research on the Periodical Activity of the Gastro Intestinal Tract Under Various Conditions (Niekotoriya noviya danniya o vliyanii razlichnikh uslovii na periodicheskuiu dieyatelnost pishtshevarelnago pribora) A I Nikulin—p 574

No 24 pp 553 576

48 Independent Automatic Irregular Contractions of the Blood Vessels Studied on Rabbit s Ear (O samostoyatelnikh sokrashtsheniyakh sosudov) N P Kravkoff—p 553
49 Ultimate Disability from Poisoning with Asphyxiating Gases Five Cases A S Solovtzova—p 565
50 Device to Aid in Holding Dressings in the Shoulder Region A T Berdiaeff—p 567

43 Treatment of Gastric Ulcer—Yarotzky describes in detail his method of treatment of gastric ulcer which is exclusively dietetic. When the patient enters the hospital he gets the next morning even in the presence of hemorrhage one raw white of an egg without salt and in the evening of the same day 20 gm of fresh butter also without salt Each succeeding day the amount of the whites of eggs is increased by one and that of butter by 20 gm., until eight whites and 160 gm of butter are given The latter amount may be continued for one or two days, and then mashed potatoes may be added, prepared with water and butter Anv oil, of good quality, may be given instead of the butter No water is allowed, as this increases the flow of gastric juice Water may be given in the form of enemas if the thirst is excessive Later on, weak sweetened tea is allowed Milk is not given for a long time, but vegetables and various gruels with oil or butter are well borne This diet Yarotzky found ensures the greatest rest for the stomach, relieves the pain, the belching, the burning and the inflation of the epigastric region, and causes contraction of the cavity of the stomach This helps to bring the edges of the ulcer together and promotes healing The gastric acidity with this treatment is greatly reduced It was found useful also in cases of poisoning with caustic acids and alkalies threatening perforation, also in cases of hyperchlorhydria and gastrosuccorrhea when it is necessary to keep the stomach at rest, and in the aftertreatment of operations on the stomach Yarotzky gives the details of fifteen cases to illustrate the advantages of this dietetic method

47 **Periodical Activity of the Gastro-Intestinal Tract**—Boldireff and Nikulin of the pharmacologic laboratory of the University of Kazan have been conducting extensive research on the periodical activity of the gastro-intestinal tract during and outside of digestion An article by Nikulin on the subject was summarized in The Journal, Oct 9, 1915, p 1316 He here reports further research in this line to determine which factors promote and which inhibit this periodical activity He made sixty-eight experiments on two dogs with permanent fistulas into the stomach and duodenum The substances that check the periodical activity of the gastro-intestinal tract may be classified as true and accidental inhibitors Pain, heating the animal, introduction of very hot or cold fluids into the gastro-intestinal tract, in amounts not less than 60 c c, and acids in a certain concentration, all have a decided effect in checking the periodical activity of the tract, as true inhibitors The accidental inhibitors include indifferent substances such as water, liquid petrolatum, white of egg The work of the digestive tract is checked by the true inhibitors at any stage of its activity, and the inhibition occurs more readily and promptly if the stomach or bowels are in a pathologic catarrhal condition During experiments on the gastro-intestinal tract, the reaction of the stomach content should be alkaline, as acids may modify the periodical activity of the stomach, and thus mistaken conclusions may be drawn Nikulin thinks that this is responsible for Carlson's recent statement that water, tea, coffee and bitters are true and constant inhibitors

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 12 II, No 7, pp 521 592

51 *Multiple Small Attacks as Rudimentary Form of Epilepsy (Drie opstellen over epilepsie II De pathogenese der veelvuldige kleine aanvalletjes) G C Bolten —p 527
52 *Vaccine Therapy in Typhoid J L A Peutz —p 555
53 *To Improve Appearance of Thick Lenses in Eyeglasses (Een cosmetische verbetering van den vorm der sterke negative brilleglazen) W Koster —p 568

51 **Multiple Slight Attacks Suggesting Epilepsy**—Bolten discusses Friedmann's and others' statements in regard to multiple 'slight "absences" of which he has encountered a number of cases He disagrees with those who regard them as a morbid entity or as identical with Gelineau's "narcolepsy," declaring that the multiple small attacks do not form a sharply circumscribed clinical-morphologic picture but vary within wide limits They may be merely the simplest form of disturbance of consciousness ("absence") or merely a slight sensation of dizziness or the most elementary motor response to irritation (rolling the eyes), or they may be of a complex character, with actual though rudimentary "motor discharges" of the most varied nature The different cases have only the one feature in common that these small attacks occur repeatedly and often and that each is very brief From the clinical standpoint they must be regarded as the most rudimentary form of the epileptic seizure They differ from it only in degree and quantitatively The pathogenesis also differs in the various cases A small proportion of the cases belong to hysteria, the largest proportion are of the cerebral epilepsy type, while there can be no doubt that "true" epilepsy is responsible for others They have nothing to do with narcolepsy nor with what Bratz calls *Affect-Epilepsie*, and they cannot be regarded as a separate morbid entity either from the standpoint of a neurosis or of anatomy Fourteen cases are described from Bolten's own experience, grouped according to the above scheme of the pathogenesis He meets the objection that the mind shows no impairment with these multiple brief attacks, even through many years, by citing some cases of men and women with severe epileptic seizures who were yet able to conduct a more or less important business for from twenty to forty-seven years after they began to have the severe true epileptic seizures at the age of about 20, and with no signs of mental impairment at any time since

Bolten's most typical case exhibiting the multiple, small attacklets, as he calls them, was in an intelligent and placid young woman of 18, absolutely free from signs of hysteria or emotionalism, one of eight healthy children Without known cause, at the age of 6, she began to have these attacks, averaging from eight to twenty a day but sometimes many more They were always of the same character She does not stop what she is doing, if she was running, she keeps on running, but she grows pale and stares at vacancy, the cornea and pupil reflexes are abolished during the attack, but she never falls or bites her tongue or passes urine or drops anything from her hands during the brief attack If she is playing the piano, her fingers keep on touching the keys but the discord shows that something is the matter Sometimes merely her nonreplying to a question is the only thing that attracts attention to the fleeting attack Nothing seems to influence the coming on or warding off of the attacks, and no shaking, calling to her or pulling on her has ever had the slightest influence in shortening or interrupting an attack, and no treatment for hysteria, epilepsy or anything else has ever shown any influence, which, Bolten remarks, excludes "true" epilepsy The attacks are precisely the same now as when he made a careful study of the case four years ago Otherwise the young woman seems mentally and physically sound, rather above the average

52 **Vaccine Therapy of Typhoid**—Peutz concludes his report of his experiences with vaccine therapy in eleven cases of typhoid with the quotation from Deutsch *Wir mussen den gunstigen therapeutischen Angaben mehr als skeptisch gegenuberstehen* "We must be more than skeptical in accepting favorable reports of therapeutic action" He says that in his eleven cases the results of vaccine therapy were but little more than nothing (*weinig meer dan niets*)

53 **Improved Shape for Negative Eyeglasses**—Koster suggests that the extreme edge of the thick lenses required for strongly negative glasses might be made to taper instead of showing the broad and unsightly edge It would make no difference in the use of the glasses, except in looking far to the side, if the edge, beyond the visual expanse was ground to taper to a sharp edge all around This would immensely improve the appearance of the glasses

Finska Lakaresallskapets Handlingar, Helsingfors

LVIII No 5, pp 719 882

54 *Interpretation of Findings on Direct Visual Inspection of Interior of Thorax and Abdomen (Bidrag till kännedomen om laparo och torakoskopi) A Johnsson —p 719
55 *Aneurysm of the Aorta, Study of Thirty Four Cases J C Sjoblom —p 749
56 *Epidemic of Typhoid in Finnish City (Tarmtyphusepidemier i Tammerfors 1916) M Bjorksten and C Nyberg —p 808

No 6 pp 883 1056

57 *Predisposing Factors in Appendicitis (Till kännedomen om appendicitens forekomst samt nagot om de disponerande momenten i appendicitens etiologi) W Backman —p 883
58 *Congenital Rhabdomyoma of the Heart E H Jagerskiold —p 953
59 *Chronic Indurative Pancreatitis, Two Cases F Stenius —p 966
60 Treatment of War Wounds of the Femur, Sixty Four Cases (Krigskirurgiska erfarenheter om behandlingen af skottskador å femur) A F Hornborg —p 976

54 **Laparoscopy and Thoracoscopy**—Johnsson has been applying the cystoscope in investigation of the interior of the

abdomen and thorax, and describes the findings in twelve abdominal and eight thorax cases The technic is simple, but interpretation of the findings is not so easy It is a valuable aid in diagnosis in dubious cases He reproduces some of the views thus obtained, one shows scattered hemorrhages of different ages scattered over the costal pleura after removal of a cancer of the spine in a woman of 35 The pleural trouble was evidently part of the metastasis picture

55 **Aneurysm of the Aorta**—Sjoblom found a history of syphilis in over 77 per cent of 34 cases of aortic aneurysm at the Helsingfors hospital since 1900 In the 10 tested for the Wassermann reaction, it was positive in 90 per cent The shortest interval since infection was seven years, the longest 35 The youngest patient was 30 at the time of his death the oldest 70 In 9 cases rupture of the aneurysm was the cause of death, and in 13 interference with the action of the heart In all but 2 cases the aneurysm was in the thoracic aorta, one patient had an aneurysm in both this and the abdominal aorta In one case there was pronounced acute nephritis, but 7 presented albuminuria Under antisyphilitic measures subjective improvement for a longer or shorter time was realized, 3 of the 13 are now clinically sound with unimpaired earning capacity during the year to date. By an early diagnosis and prompt treatment it may prove possible to arrest the aneurysm in its incipiency It is liable to be accompanied by symptoms of cardiac insufficiency or angina pectoris or there may be merely neuralgiform pains cough with or without blood in the sputum, or symptoms from the pressure in the mediastinum The physical symptoms may not appear until late in the course of the aneurysm, and the diagnosis may depend almost altogether on the Roentgen picture A serous effusion in the pleura is a common complication, and is liable to mask the aneurysm Puncture of the effusion in such a case might be dangerous as it might open the aneurysm Although the pains and other disturbances may subside completely under antisyphilitic treatment, yet there is little chance of the aneurysm retrogressing

56 **Typhoid at Tammerfors**—From forty-one cases in January the epidemic jumped to 1 609 cases in March The water supply had been accidentally contaminated by dredging near the mouth of the intake pipes The epidemic was combated by providing quarters in the hospitals to receive all typhoid patients—which was by no means an easy task at first—and by getting ample nursing and disinfecting service for which the city appropriated ample funds from the start The water contained numerous typhoid bacilli and it was at once chlorinated after which the epidemic died out although occasionally a few typhoid bacilli are still found in the water The chlorination can thus be regarded as quite satisfactory, but not as an absolute guarantee against typhoid bacilli

57 **Appendicitis in Finland**—Backman analyzes 946 operative appendicitis cases in the last five years in a district with 104 198 inhabitants The proportion was thus 1 28 per thousand Only 29 4 per cent of the total cases were of the destructive type and in 21 6 per cent of this group a familial predisposition was manifest A nervous or tuberculous taint was evident in 50 per cent and only 8 4 per cent of all the appendicitis patients could be classed as robust Dyspepsia had been noted in 51 6 per cent of the destructive and in 58 8 per cent of the catarrhal cases Gastroptosis was found in 34 7 per cent of the severe cases in men and in 79 7 per cent in the women, in the catarrhal cases in 55 2 per cent of the men and 77 7 per cent of the women These figures indicate a constitutional factor as an element in the etiology of appendicitis The well-to-do are affected more than the working classes Chronic constipation has a share in its development but no connection with acute enteritis or colitis was evident and no influence from acute infectious disease or the seasons In 727 cases the appendix varied in length from 2 to 19 cm

58 **Rhabdomyoma of the Heart.**—The case described by Jägerskiöld was in an infant of 7½ months who had developed apparently normally except for striking pallor There was no cyanosis, no restlessness, merely a slight cough for a few days and the boy died silently in bed one night The case resembles in every respect Seiffert's case, and sustains his views as to the origin of the growth from giant embryonal heart muscle cells Nothing abnormal was found in the brain or kidney

59 **Chronic Pancreatitis**—Stenius found that a cancer had obstructed the outlet to the pancreas in each of the two cases of indurative pancreatitis he describes The women were 64 and 50, and this obstruction amply explains the pancreas trouble although some local infection had probably accelerated it

Norsk Magazin for Lægevidenskaben, Christiania

August LXXVII No 8 pp 989 1124

61 *Roentgenography in the Diagnosis of Suppuration in the Accessory Nasal Sinuses (Rontgenogrammets betydning for diagnosen av næsebihulernes empyemer) R Gording—p 989
62 *Scorbutus and Its Prophylaxis (Fortsatte undersøkelser om skjørbuk med specielt sigte paa at konservere hvitkaal med bibehold av dens antiskorbutiske egenskaper) A Holst and T Frølich—p 1008
63 *Thymus Treatment of Chorea (Corea minor Aetiologie og patogenese) A O Haneborg—p 1040

61 **Roentgenography of the Accessory Nasal Sinuses**—Gording's study of this subject is illustrated with twenty-one roentgenograms of healthy and diseased sinuses, and of sinuses in the cadaver Roentgenography as an aid to the diagnosis is of most import with frontal sinusitis and in the discovery of involvement of more than one sinus It is also valuable in revealing asymmetr in the sinuses which may otherwise prove misleading The sphenoidal sinus is the only one that is not shown up by sagittal roentgenography Even the picture from the side is not reliable, as the shadows of the two cavities are superposed and blend When there are septa and the front wall is thick, the shadow may be dark even with a healthy sinus

62 **Further Research on Scorbutus**—Holst and Frølich reiterate that scorbutus in young children and in adults is the same affection, the difference being merely that the bones are complete in adults and hence do not show the changes observed in infants They have induced scorbutus in guinea-pigs and in monkeys the clinical picture including even hemorrhage in the kidney, exophthalmos and microscopic changes in the bones They have also cured the disease in the animals by giving the same antiscorbutic food that cures it in man The research they here report was undertaken to discover some means of preserving the essential elements in the antiscorbutic articles of food, so that they could be taken on long voyages, etc, where there is danger of scorbutus They dried white cabbage so that it kept for two years all its antiscorbutic properties as tested on experimental animals It also retained approximately its color and taste The drying process was done at a temperature of only 37 C A dish of phosphorus pentoxid was placed in the air-tight exsiccator with the cabbage The dish of the pentoxid was changed for a fresh dish now and then, as the weeks passed, until it ceased liquefying This was the sign that the cabbage was thoroughly desiccated even at the temperature of 37 C (98 6 F)

63 **Chorea Minor**—Haneborg gives the details of sixty-nine cases of chorea and then discusses the views of various writers as to its etiology He says further the hysteric form is rare and is accompanied by other signs of hysteria, and it often occurs from imitation One feature peculiar to c[illegible] minor is that it begins exclusively in children [illegible] develop acute rheumatism, but never chorea T[illegible]orea age, Haneborg emphasizes is from 2 to 16, and [illegible]is age is the period of the thymus gland Is it not possible, he suggests, that chorea may be the result of deficient or perverted functioning of the thymus gland? Does the thymus gland contain substances which have a tranquilizing influence on the nervous system, so that any deficiency in its internal secretion may leave the nervous system in the young free to behave abnormally? The adult nervous system has acquired a stable balance so that it does not suffer from lack of thymus functioning

It seems plausible to assume that with acute articular rheumatism or any other acute infectious disease the thymus may suffer It need not inevitably suffer but, if it does, its secreting function may be impaired and the unstable nervous system of the child may feel the lack of the normal restraining influence from the thymus The nervous system is thus left free for exaggerated reflex irritability, and we have the clinical picture of chorea Thymus extract seems to have a sedative influence on the nervous system Vetlesen has been giving it systematically to patients with exophthalmic goiter, finding it decidedly beneficial, and Haneborg has given it with good effect to control convulsions He mentions the case of a congenital idiot who had had for years from fifteen to thirty convulsions a day, rebellious to all measures, until they subsided under a course of thymus treatment They returned later, but milder, and only one or two a day After a second successful case of convulsions subsiding under thymus treatment, Haneborg began to treat chorea with thymus, and the clinical histories here reported show the abrupt turn for the better when this was done Sixteen hospital patients were given the thymus treatment and several in his private practice The results were most satisfactory, both in the infectious and in the hysteric form of chorea, even in cases of many months' standing The choreic movements returned in one case when the treatment was suspended after a week, but subsided anew when it was resumed

His idea is that the thymus is not the only factor involved in the production of chorea, but that an insufficiency in the functioning of this gland may be the drop that makes the cup spill over—upsetting the unstable balance of the immature nervous system, and allowing the play of uncoordinated, choreic movements There is much to sustain the assumption that an infection is the primary factor, an infectious encephalitis But this alone does not bring on chorea, as otherwise chorea might occur in adults The additional factor which imprints the chorea stamp on the clinical picture is thymus insufficiency, and thymus treatment may do away with this factor He advises the salicylates at first for two days if there are rheumatic pains and fever, otherwise not At the same time he gives from three to six thymus tablets daily—a child of 10 getting four or five a day He suspends the thymus treatment when the jerking movements have ceased

In two cases of pregnancy chorea, the jerking movements subsided under thymus, without other measures, as he expected, but in two cases of tic convulsif, a purely nervous affection, no effect was apparent

Ugeskrift for Læger, Copenhagen

August 10, LXXVIII No 32, pp 1353 1396

64 *Pandy's Test for Albumin Reaction in Cerebrospinal Fluid (Om Pandy's Reaktion i Cerebrospinalvædsken.) C With —p 1353
65 *Lumbar Puncture in Syphilis (Om Generne ved samt om Indikationerne for Lumbalpunktur ved Syphilis) C With —p 1353
66 *Congenital Syphilis at Copenhagen General Hospital Ehlers —p 1370

64 **Test for Albumin in Cerebrospinal Fluid**—With has been applying Pandy's test with parallel tests according to the Bisgaard, Ross and Jones method in 225 clinical cases He tabulates the findings in the cases of syphilis, comparing them with the cell count and the Wassermann reaction Pandy's reagent is a concentrated solution of liquid phenol in distilled water About 80 c c of the liquid phenol are [illegible]ed with the distilled water, stirred and placed in the [illegible]ator for several hours After keeping for a few days a [illegible] temperature, the upper, watery part is used for the reagent [illegible] drop of the cerebrospinal fluid is transferred with a Pasteur pipet to the bottom of a watch glass filled with the reagent If no precipitate is thrown down in five seconds, the findings are negative Pandy reported negative findings in all but 5 of 133 patients free from paresis, and these 5 had a history of syphilis In 106 cases of paretic dementia the reaction was very pronounced and there was a weak response in 7, and no response in 9 With concludes from his study of the reaction in 325 cases that an absolutely negative reaction is strong testimony in favor of normal conditions while a very pronounced reaction testifies the opposite As the technic is so extremely simple and as the findings are complete in a few seconds, he thinks the test will find useful application at the bedside, accepting the absolutely negative or the strongly positive responses as a criterion, not trusting to the less decided responses A strong positive response calls for the application of other, more exact tests, while an absolutely negative reaction is a fairly certain sign that the fluid is normal

65 **Lumbar Puncture**—With has had opportunity to study the effects of lumbar puncture on large numbers of patients, and tabulates the outcome, listing the symptoms which followed the puncture when only 5 c c were withdrawn and in the cases in which the lumbar puncture was repeated two or more times The cases are classified further as the puncture was done in the hospital or on outpatients He insists on a week's rest afterward if the patient cannot be induced to enter the hospital, and warns that a brain or spinal cord tumor in a syphilitic need not necessarily be of syphilitic origin, relating a few cases In 453 cases of syphilis apparently not involving the nervous system, 56 of the men and 74 of the women had severe headache and vomiting for a few days to a week, after the lumbar puncture With remarks in conclusion that although he has had no experience of the kind and has not encountered any altogether reliable account on record, yet it seems plausible to assume that the fluctuations in the pressure in the spinal fluid after lumbar puncture might spread a previously localized process Holm has reported a case which suggests this A child with symptoms of a tumor in the brain developed symptoms of meningitis five days after lumbar puncture, and necropsy revealed a tubercle in the brain and tuberculous meningitis

With recapitulates his experiences with lumbar puncture done 490 times on patients without signs of nervous disease that more or less serious by-effects followed in 28 per cent The by-effects were more numerous and more severe the larger the amount of fluid withdrawn and when the puncture was done on outpatients With patients presenting symptoms of involvement of the nervous system, the by-effects were less pronounced, but were often severe in the neurasthenic He insists that lumbar puncture should not be done the same day as the injection of salvarsan At the same time he emphasizes the necessity for lumbar puncture in all cases of syphilis in the hospital when it has not been done before A negative response to tests of the cerebrospinal fluid is no guarantee that the nervous system is not involved When an old syphilitic with no symptoms left but a positive Wassermann reaction is in the hospital for any reason, he urges not to miss the opportunity of getting an oversight of the case from all sides

66 **Congenital Syphilis**—Ehlers has been keeping for years a general register of all cases of syphilis that have passed through his hands at the public hospital He has found it of great use in determining the age of the syphilis when the patients return later, and in determining the share of syphilis in nervous affections, cardiovascular disease, etc This general register now includes all the adult patients as far back as 1887 and the children to 1863 It includes not only all the children with congenital but also those who have acquired syphilis, as the fifty-three years of experience have shown that the two may be superposed and blend into a clinical picture which is illuminated by the facts gleaned from the general register His register is on the card catalog system, each case being recorded with the full name, place and exact date of birth, the diagnosis and the time of treatment Sooner or later, he says, the old prejudice against full statistics of syphilis, as a "disgraceful disease," will be overcome and it will be managed like other acute and chronic infections to permit adequate prophylaxis During the period he mentions there were 1,622 children with congenital syphilis, of whom 591 died The mortality has declined somewhat, the highest figure was 53 per cent in 1871-1880 while since 1900 it has been 32 and 34 per cent He adds that those who died were in a very grave condition, practically moribund, when brought in The treatment of children with congenital syphilis, when given a chance, is by no means the ungrateful task which many physicians think or as these statistics seem to show